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25c

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4 inch	15 or 3.5 ohm	37/6	$3.75
5 inch	15 or 3.5 ohm	40/-	$4.00
6 inch	15 or 3.5 ohm	45/-	$4.50
5 x 7 inch	15 or 3.5 ohm	47/6	$4.75
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"AMATEUR RADIO"

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FEDERAL COMMENT

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CONVENTION AGENDA

As Easter once more approaches, we realise that another Federal Convention is about to take place—this year in Queensland—and as far as records show, the first time ever in that State. For some time prior to the Convention, Divisions have been literally scratching their heads wondering what they shall raise in the way of Agenda items.

It has been evident for many years that a number of items in the category of "hardy annuals" will again appear and that yet others will have been hastily thought of at the last minute and included in an effort to save "Divisional face." Whilst the latter situation should be avoided to save valuable time at Conventions, these items nonetheless receive the same attention and consideration as well-thought-out motions dealing with the more important and urgent matters of policy.

The Oxford Dictionary defines a Convention as a formal assembly for deliberation or legislation on important matters and further as an assembly of delegates or representatives at conference. While the stress is on the discussion of "important matters," there are other benefits to be derived from a Convention which are not revealed in definitions. These are the meeting of the delegates in person and being able to discuss both formally and informally mutual problems. It is also being able to inform the other delegates of the background to certain motions which may appear both specious and unimportant on paper. Despite these additional benefits from Conventions, a number of relatively unimportant matters still appear year after year which could be just as easily conveyed in writing during the year.

The foundations of our Institute are now quite old and we should now be grown-up enough to base future Conventions on policy and important administrative matters which are not easily sorted out by correspondence. Matters dealing with the Constitution, attracting new members, new types of licence, regulatory matters of Amateur operation are all subjects on which more time could be spent with profit at the Conference table without the Chairman having to hurry discussion along to more mundane and trivial matters.

The matter rests entirely in the hands of the Divisions as to what matters they commit to Convention agenda or submit by correspondence. The attitude should not be—we will look foolish if we don't submit about ten items; it should be—can we get an answer to this problem by postal motion or is it contentious enough for discussion at a Convention. The guiding thought for the future should be—one good motion on the agenda is worth ten trivial motions.

—W. T. S. MITCHELL, FEDERAL COMMUNICATIONS MANAGER.

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MODIFYING THE PALEC VALVE AND CIRCUIT TESTER

G. WALL*

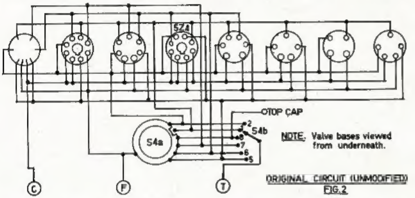
IF you have a "Palec" VCT or VCT-V you most likely have lamented the fact that it has not been able to keep pace with the output of modern valve types.

It is probable that you have also contemplated or obtained adaptors or adaptor panels, only to find that they, too, have been outmoded by later types of valves.

This trend can keep on going, and probably will "ad infinitum" or "ad-nauseum," depending on your point of view.

The first problem in modifying the unit was "how many switches?" This presented a problem, because how many valve connections are the future valves going to have? Our "crystal ball" video circuits broke down, but as advertisements for 10-pin types have been seen, it was decided that this should be a start.

A 12-pin socket and plug were obtained and installed on the front panel to connect the adaptor panels into the tester, this then prompted the installation of 12 switches, and although a



ORIGINAL CIRCUIT (UNMODIFIED)
FIG. 2

The main trouble with the valve tester (Palec) is that where valves have electrodes connected to more than one base pin the tester will show an "element short" and in most cases cannot be tested.

While this instrument is not the ultimate in valve testing, there is no doubt that it is still a useful piece of equipment. It has retained its usefulness and its value even second or third hand from the original purchaser.

As new, these units were approximately £21-£22, and 20 to 25 years later still cost about £10 to £15 secondhand, depending on condition, furthermore the demand exceeds the supply.

With this in mind, prompted by a modern type with switching to isolate each valve element, enquiries were made to find some of these switches to bring the "Palec" up to date, to cope with as many valve types, past, present and future.

Finally, it was found that "Astronic Imports" (Melb.) had a few, but obligingly obtained a complete set of "Tech" TC-2, 2-pole 4-position, slide-type switches for the job, also a few more for stock, and mentioned that more could be obtained freely if required.

Your adaptor panels will still be required, because when the switches are installed in the front panel, there is no room for more than a couple of valve sockets, but valves with electrodes connected to more than one pin can be tested with the modified unit.

tight squeeze on the "Palec" front panel, six switches can be put either side of the meter at the top of the panel.

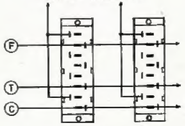
How each individual modifies his unit may vary a little, but as space is limited it is suggested that the following be given some thought.

Remove all valve sockets as a start, together with the "Selector Switch" (S-4a-4b) as this will no longer be required. (See Fig. 2.)

Move the "Ohms Adj." pot. into the "Element Selector Switch" position, and install the neon test lamp into the "Ohms Adj" hole.

The top cap connection can be moved to any convenient position or beside the neon globe and will clear the top of the panel for the switches.

In most "Palec" testers there is a plated or painted strip just above the



REAR VIEW OF
ELEMENT SELECTOR SWITCH
FIG. 3

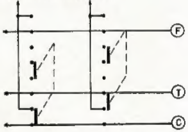
centre of the meter, approximately 3⅝ inches from the top of the panel. Cut a suitable piece of metal to fit the space from this position to the top of the panel.

Mount the switches on this sub-panel, either side of the meter opening, and after cutting the original panel to accommodate the switches, fix the sub-panel in place.

With the switches mounted in position, thread a wire (18-16 s.w.g. tinned copper) through the switch lugs as shown in Fig. 3 and reconnect to the original tester circuits removed from the valve sockets and element short switch, as designated (F) Filament, (C) Common, and (T) Test.

Bridge lugs 1 and 7 (Fig. 3) on each switch, as viewed from the top of panel and connect this bridge wire to the appropriate valve pin and 12-pin socket pins, left on the top panel, for extension to the external adaptor panels.

The circuit of Fig. 4 shows the actual switch connections, for two of the four positions of each switch, from which it will be seen how each valve element can be selected, to be (A) left connected to common filament; (B) left in an open position; (C) selected for filament voltage, or (D) selected for test, for either "emission" or "element short," depending on the position of the function switch selector at the bottom l.h.s. of the unit.



SCHEMATIC SWITCHING CIRCUIT
FIG. 4

To enable you to follow the switching, and for trouble shooting, the complete circuit has been included (Fig. 1) (we think for the first time) together with component values.

After having completed the wiring modification and re-checking, tests may be made.

While most owners of these units will be conversant with the testing drill of the original wiring, a few suggestions in operation for the sake of completeness are added.

To test valves: Set all switches in the common position.

Set selector switch to "Line switch," adjust "Line Adj." to full scale meter deflection.

Ascertain to which pins the valve filaments are connected, set filament

(Continued on Page 14)

* 34 Railway Crescent, Moorabbin, Vic.

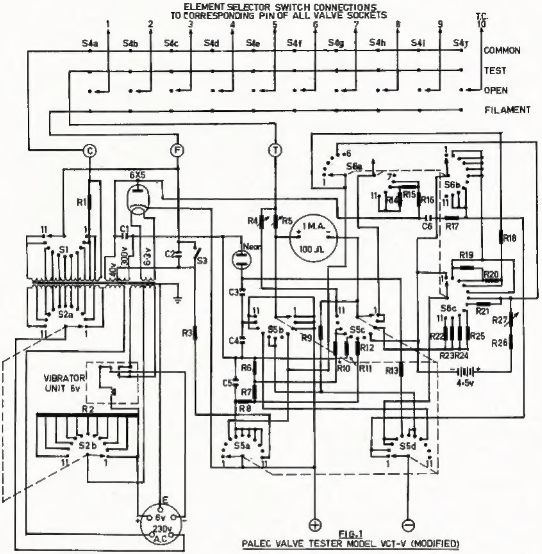


FIG. 1
PALEC VALVE TESTER MODEL VCT-V (MODIFIED)

CONDENSERS

C1—0.01 μF. 2000v.
C2—0.01 μF. 350v.
C3—0.01 μF. 350v.
C4—0.005 μF. 350v.
C5—0.5 μF. 350v.
C6—2.0 μF. 350v.

RESISTORS

R1— 1.0 ohms
R2—0.62 ohms total
R3— 2K
R4—250 ohms w.w.
R5—30 ohms range
R6— 5K
R7—25K
R8— 4K
R9—20 ohms
R10—225K
R11— 50K
R12— 2K
R13— 25K
R14—210K
R15—123K
R16— 8.6K
R17—283K
R18— 0.444 ohms
R19— 10 ohms
R20— 0.667 ohms
R21— 3.6K
R22— 1 meg.
R23—250K
R24—100K
R25— 9.8K
R26—300 ohms
R27— 1K var.

SWITCHES

S1—Filament Volts.

1	1.4 volts
2	2.0 „
3	2.5 „
4	3.3 „
5	4.0 „
6	5.0 „
7	6.3 „
8	7.5 „
9	12.5 „
10	25.0 „
11	25.0 „

S2—Line Adjust.

1	195 volts
2	200 „
3	205 „
4	220 „
5	225 „
6	230 „
7	235 „
8	240 „
9	245 „
10	250 „
11	255 „

S3—Press for Merit.

S4—Selector.
Section S4b connects one valve element to meter or neon whilst S4a connects the remainder to filament volts a.c.
Note: S4a and b is replaced in modified circuit with switches S4a b c d e f g h i j.

S5—a b c d.

1	output volts
2	a.c. volts
3	d.c. volts
4	mA.—ohms
5	Paper condensers
6	Electrolytic—25v.
7	Electrolytic—500v.
8	Megohms
9	Line Check
10	Element Shorts
11	Merit Test

S6—a b c.
(Section a 2—5 x 1 successive).
(Section b, c 2—11 x 1).

1	1 mA.
2	10 mA.
3	100 mA.
4	250 mA.
5	Low ohms
6	Ohms x 1
7	Ohms x 10
8	10 volts
9	100 volts
10	250 volts
11	1000 volts

AN A.M.-C.W. EXCITER FOR 144 Mc.*

A CLEAN SIGNAL FOR THE AB1 LINEAR

DOUG DeMAW, W1CER

The exciter described in this article will provide a chirp-free, shaped c.w. note and will produce a well-modulated a.m. signal. Used either as a low-power transmitter, or as a driver for an a.m. linear amplifier, this unit can satisfy a host of needs in the v.h.f. station. R.f. isolation protects the speech and modulator stages from the feedback ills that are common to many v.h.f. phone rigs.

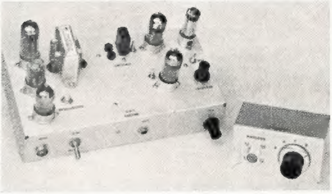
A GREAT deal of information has been published with regard to proper operation of linear amplifiers, but some Radio Amateurs are not aware of the importance of the signal quality required from the exciter unit. Unfortunately, the defects present in the output signal of the exciter are magnified by the linear amplifier. Because of this, a number of somewhat horrendous signals are heard on the various Amateur Radio bands. For a.m. linear operation, the r.f. output from the exciter must be free from hum, spurious energy and improper modulation characteristics. The c.w. signal, which is used to excite the linear amplifier, must be similarly clean, and without key clicks and thumps.

This article describes a low-power a.m./c.w. exciter, tailored to use with Class AB1 linear amplifiers, and capable of producing a clean excitation source for this mode of operation. A description of an attenuator box is included in the text. It will permit swamping out of excessive driving power to the amplifier used, and is suitable for a.m. or c.w. operation. It will work well with the equipment described in this article, but can also be used with other exciter/linear-amplifier combinations.

THE CIRCUIT

Two 6CX8 tubes are employed in the r.f. section of the exciter (Fig. 2) Sufficient power output is developed to fully excite a 4CX250 tube, operating in the AB1 mode. A regulated screen voltage is supplied to the oscillator stage (V1A) to prevent chirp, caused by the changes in power-supply voltage, during c.w. operation. This same feature contributes to better stability of the a.m. signal. The crystal v.f.o. switch, S1, converts V1A from an oscillator to an amplifier when the switch is placed in the v.f.o. position. An external v.f.o. can then be attached at J1, supplying an 8 or 24-Mc. signal to the exciter. With S1 in the crystal position (open), standard 8-Mc. crystals can be used for frequency con-

* Reprinted from "QST," Sept. 1965.



A top-chassis view of the low-power exciter. Shown at the right—a 5-watt step attenuator for reducing the output of the exciter when used with a linear amplifier.

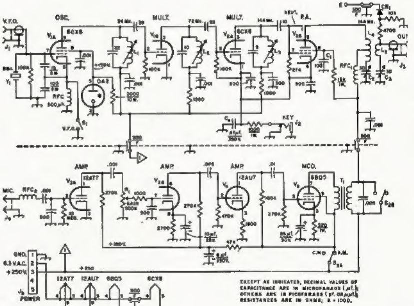


Fig. 2—Schematic diagram of the 2-meter assembly. Resistors are ½-watt composition type unless otherwise noted. Capacitors are disc ceramic except those bearing polarity markings, which are electrolytic. F indicates feedthrough type. SM is silver mica.

C1—100-pf. disc ceramic with pigtails cut to ¼-inch length
C2, C3—30 pf., variable (Hammarlund MAC-30).
C4—.47-uF. mylar or moulded paper capacitor.
CR1—1N34A.
E—One terminal of feedthrough capacitor.
J1—BNC chassis receptacle (UG-290/U).
J2—Closed-circuit key jack.
J3—Co-axial chassis connector (SO-239).
J4—Microphone connector.
J5—5-pin male chassis connector (Amphenol 86-CP5).
L1—11 turns No. 24 enam. close wound on ⅜-inch. diam. iron-slug form.
L2—5 turns No. 24 enam. close-wound on ¼-inch. diam. iron-slug form.
L3—2 turns No. 20 bus wire, spaced to occupy ¼-inch area on ¼-inch diam. iron-slug form.
L4—6 turns No. 20 bus, ½-inch. diam. x 1 inch long, centre tapped.
L5—2 turns No. 22 insulated hook-up wire, ⅜-inch diam. inserted into centre of L4.
R1—0.5 megohm control, audio taper.
RFC1, RFC2—1.8-µh. r.f. choke (Ohmite Z-144).
S1—S.p.s.t. slide switch.
S2—D.p.d.t. toggle switch.
T1—5-watt modulation transformer (Stancor A-3812 using one half of centre-tapped winding as primary).
Y1—8-Mc. fundamental crystal.

trol. The tuned circuits, L1, L2 and L3, have sufficiently broad response to permit output frequency excursions of 1 Mc. without need for retuning the stages. A gimmick capacitor is used to neutralise the p.a. stage (V2O) and is necessary if stable operation is to be secured. The screen-grid capacitor, C1, is series-resonant at 144 Mc. and aids in stabilisation of the output stage. For c.w. operation, the cathodes of V2A and V2B are connected in parallel and keyed at J2. A shaping network, consisting of a 0.47 μF. capacitor and a 1000-ohm resistor, is connected between the keyed cathodes and the key jack. This network eliminates make-and-break clicks, resulting in a well-shaped keying characteristic. An r.f.-sampling test point (E) is available for tuneup of the exciter.

Special attention was given to the audio section of the exciter in an effort to reduce distortion to a minimum, while making certain that 100 per cent. modulation was possible. The modulator is capable of producing far more audio than is necessary, which permits the 6BQ5 tube to operate below the point where distortion becomes a significant consideration. R.f. filtering is used at J4, and at the grid of V3B, to prevent the squealing and howling common to many v.h.f. transmitters. Additional r.f. isolation is offered by the shield partition which divides the two halves of the chassis. The inter-circuit wiring, which passes through this shield, is routed through FT (feed-through) capacitors to aid further in decoupling. Three stages of speech amplification are used, to avoid having marginal speech gain—a shortcoming of many v.h.f. transmitters. The values chosen for the coupling capacitors, grid resistors and plate resistors in the modulator will provide optimum response in the 400 to 3000-cycle range. This system helps to eliminate the hum component in the signal, while passing the most effective portion of the voice range. Switch S2 disables the modulator during c.w. operation and shorts out the secondary winding of T1.

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Fig. 4 — Close-up view of the r.f. attenuator assembly. The pilot lamps are mounted in ⅜-inch rubber grommets.

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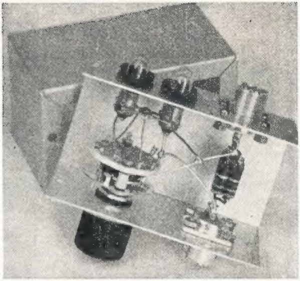


The power supply requirements for the exciter are 250 volts at 150 Ma. and 6.3 volts at 3 amperes. A measured r.f. power output of 2.1 watts was secured using a Thruline watt-meter terminated by a 50-ohm non-inductive dummy load.

CONSTRUCTION

The 2-meter exciter is built on a 9½ x 5 x 2-inch aluminium chassis. The circuit wiring in the r.f. section of the chassis should be carried out in the manner shown in Fig. 3. All leads carrying r.f. should be kept short and direct as possible, to maintain the possibility of stray inductance. Similar treatment should be given to the leads on the various bypass capacitors and resistors used in the r.f. circuitry.

Two crystal sockets are mounted on the chassis to facilitate using both the popular FT-243 units and the less-common pin size of another war-surplus type crystal. Since the latter was added as a convenience for the author, it is not necessary for the constructor to include the extra socket.

The v.f.o. input jack, J1, and the crystal/v.f.o. switch are located on the rear apron of the chassis near V1. Ceramic tube sockets are used at V1 and V2, reducing r.f. losses in that part of the circuit. The key jack and its related shaping network are near the front edge of the chassis. The plate-tank inductor and capacitors C2 and C3 are to the left of this area (Fig. 3). The r.f. output jack, J3, is located on the rear of the chassis and is connected to L5 through a short length of 50-ohm subminax co-axial cable.

Turning next to the audio portion of the assembly, the microphone conductor and phone/c.w. switch are on the front wall of the chassis. The modulation level control is mounted on the top surface of the chassis and is adjacent to V3 and S2. The power-supply connector, J5, is located on the rear wall of the chassis, near the 6BQ5 modulator tube. Test point E is between C3 and OA2 voltage-regulator tube. An aluminium plate, with four rubber feet attached, is used to enclose the bottom of the chassis after the final testing is completed.

TUNE-UP AND OPERATION

Prior to applying the B-plus and filament voltages to the completed exciter, place the tubes in their sockets and adjust coils L1, L2 and L3 to resonance with a grid-dip meter. The correct frequency for each of these inductors is shown in Fig. 2. Next, attach a dummy load at J3 and apply

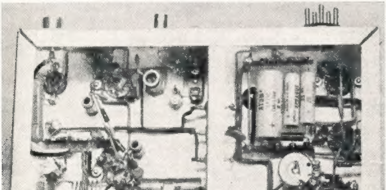


Fig. 3—Under-chassis view of the exciter, showing the r.f. circuitry in the left-hand compartment. The modulator is contained in the boxed-in area on the right.

power to the unit, using either crystal or v.f.o. control. The power swamper described later in this article will serve as a dummy load during tuneup and testing. A v.t.v.m., adjusted to read 0-15 volts d.c., can be attached between test point E and ground. Observing the reading on the v.t.v.m. meter, adjust L1 through L5 for maximum indication, which should be in the region of 5 volts after all stages are peaked. The spacing between L4 and L5 can be adjusted until optimum power output is secured.

The next step will be to neutralise the p.a. stage. Temporarily disconnect the plate and screen voltage from V2B and attach a sensitive r.f. sampling device at J3. The detector can be a 2-meter field-strength meter connected to the exciter by a short length of co-axial cable, with a 50 or 100-micro-ampere meter for an indicating device. Instruments of this type are described in the A.R.R.L. Handbook, under Measurements. Then the neutralising stub (black wire to the immediate right of L4 in Fig. 3) is moved back and forth near L4, with the exciter operating in the c.w. position, until a minimum reading is noted on the neutralising indicator's meter. The spacing shown between the stub and L4, in Fig. 3, is typical.

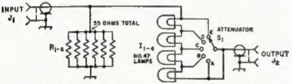


Fig 5—Schematic diagram of the r.f. attenuator.

I1, I4, inc.—No. 47 pilot lamps.
J1, J2—Co-axial chassis connectors (SO-239).
R1-R6, inc.—330-ohm, 1-watt carbon resistors.
S1—Single pole, 5-position ceramic wafer switch, non-shorting.

In checking the modulator portion of the circuit, a No. 47 pilot lamp can be substituted for the dummy load at J3. Tune the transmitter for maximum bulb brilliancy by adjusting C2 and C3. With a crystal or ceramic microphone connected to J4, and with the switch S2 in the voice position, adjust R1 while speaking into the microphone. When the bulb shows an increase in brilliancy (about 25 per cent.), a suitable setting for R1 will have been reached. Further adjustment of the audio level can be carried out with the help of other stations after the transmitter is placed in actual on-the-air operation. If an oscilloscope is available, a more satisfactory setting for R1 can be established and will permit thorough evaluation of the exciter's waveform. This method is recommended if 100 per cent. modulation is desired.

THE SWAMPING DEVICE

Operating conditions for the transmitter are as follows: Oscillator plate current, 18 Ma.; tripler plate current, 10 Ma.; doubler plate current, 8 Ma.; final grid current, 1.5 Ma.; amplifier plate and screen current (combined value) 34 Ma.; modulator plate current, 50 Ma.

In some instances it will be desirable to include provision for attenuating the output signal from the exciter before applying it to a linear amplifier. It is better to "swamp out" a portion of the excess r.f. drive than to detune the last stage of the exciter, or grid circuit of the linear, in an effort to reduce the level of signal input to the amplifier. The modulator portion of the exciter should at all times have a proper load to look into, which can only be maintained by permitting the p.a. stage to draw normal plate current. Do not reduce the coupling between L4 and L5 in an attempt to lower the output from the exciter unless the level of modulation is similarly altered.

If too much drive is available for your linear amplifier, the unit shown in Fig. 5 can be used. The swamper is housed in a 2¼ x 2¼ x 4-in. Minibox and has a step-attenuator switch which places as many as four No. 47 bulbs in series with the exciter's output. A 55-ohm dummy load, consisting of six 330-ohm 1-watt resistors, is permanently bridged across the input terminals of the swamper. This provides the exciter with a constant load and further attenuates the output signal. Depending upon the efficiency of the grid circuit in your linear amplifier, this accessory may or may not be required. The circuit for the swamper is given in Fig 4. A more sophisticated version of this device, suitable for s.s.b. operation as well, can be found in the 1965 edition of the A.R.R.L. Single Sideband Manual, page 228.

SOME FINAL THOUGHTS

The a.m./c.w. exciter can also be used as a low-power 2-meter transmitter for local operation, portable work, or during field-day activities. As an exciter, it will lend itself nicely to application with the 4CX250 2-meter linear amplifier described on page 11, February 1964, "QST." Other tubes, such as the 4X150A, operated Class AB1 can be driven to full rated input by this little exciter. By making appropriate modifications to the heater wiring, this unit will serve as a mobile transmitter. If you're interested in generating a clean a.m./c.w. signal for amplification by a linear amplifier—try this one. The usual circuit "bugs" have been eliminated.

AMATEUR FREQUENCIES:

USE THEM OR LOSE THEM!

SOME LOW-PASS FILTER DESIGNS FOR AMATEURS

J. McL. VALE, VK5ZP*

INTRODUCTION

In the last ten years or so the tremendous capacities of the modern digital computer have caused radical changes in the techniques of filter design and analysis.

The old image-parameter method of design, which Amateurs will have seen in the A.R.R.L. Handbook, is now quite out of date. No matter how closely the element values of an image-parameter designed filter agree with the design, the filter response, and in particular the attenuation outside the passband, will be significantly poorer than that hoped for in the design. In other words, filter design by the image-parameter method is imprecise and approximate.

Modern filter theory has discarded all the approximations of the image parameter method. It is now quite justifiable to attribute deviations between the response computed and that measured in practice to element value tolerances. Further, filters designed from modern filter theory will be more economical in the number of elements (capacitors, inductors) used.

This article will give details of three low-pass filters. The author does not, at the moment, have the time for a more complete article, but if sufficient interest is shown he contemplates writing one in a few months time.

THE FILTERS

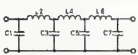
The basic circuit is shown in Fig. 1. The three filters described will have the following characteristics:—

(1) Maximum v.s.w.r. in passband = 1.10.

(2) Cut-off frequencies:
Filter 1 35 Mc.
Filter 2 56 Mc.
Filter 3 150 Mc.

(3) Input and output impedances—50 ohms.

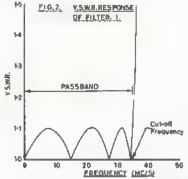
F.G.1. SEVEN ELEMENT LOW PASS FILTER.



Computation of the element values requires specification of the parameters listed above. Conversely, changing either or both the cut-off frequency and the input-output impedance will require re-calculation of the element values. However, it will be shown later in the article that such calculations may be done easily with a slide rule or pencil and paper.

The reader will see what is meant by the first characteristic — maximum v.s.w.r. in passband—by examination of Fig. 2, which shows the v.s.w.r. of Filter 1. Note that the v.s.w.r. of the filter is the v.s.w.r. measured at the input terminals of the filter when the output is terminated by 50 ohms (or whatever the specified output impedance is).

The cut-off frequency is defined to be that frequency at which the filter v.s.w.r. rises above the value specified as the maximum in the passband—see Fig. 2 again.



The attenuation of the three filters is shown in Fig. 3. Possibly the cut-off frequencies could be lowered somewhat, but it was thought that some allowance should be made for constructional errors. However, if you think you can get away with it, cut-off frequencies of 30, 54 and 148 Mc. would be ideal. As they stand though, the filters should be quite suitable, especially the h.f. filter (Filter 1) and the six metre filter (Filter 2).

The response of the two metre filter (Filter 3) is not very satisfying, although it is optimum for a seven-element filter. Adding two or four more elements would improve its response, but the element values would then be quite different and the author just does not have the time to calculate them at present.

The attenuation graphs are a little misleading in one respect—the attenuation does not fall to zero in the passband; in fact the attenuation in the passband (neglecting coil losses) is so small that it cannot be shown on the graph.

ELEMENT VALUES

Element	Filter 1	Filter 2	Filter 3	Units
C1	72.5	45.3	16.9	pF.
C2	159	99.4	37.1	pF.
C3	159	99.4	37.1	pF.
C4	72.5	45.3	16.9	pF.
L1	317	198	73.9	nH.
L2	371	232	86.6	nH.
L3	317	198	73.9	nH.

1 pF. = 10^{-12} Farad
1 nH. = 10^{-9} Henry

Tolerances: Plus or minus 1% tolerance on element values will not degrade response markedly. Capacitors then should be no problem.

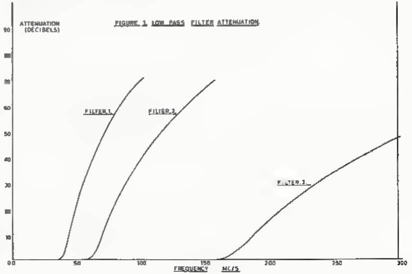
The inductors are best made by bringing them to resonance with the filter capacitors. That is,

For Filter 1—
C1 and L1 resonate at 33.2 Mc.
C2 and L2 „ „ 20.8 Mc.
C4 and L3 „ „ 33.2 Mc.

For Filter 2—
C1 and L1 resonate at 53.1 Mc.
C2 and L2 „ „ 33.2 Mc.
C4 and L3 „ „ 53.1 Mc.

For Filter 3—
C1 and L1 resonate at 144.2 Mc.
C2 and L2 „ „ 89.3 Mc.
C4 and L3 „ „ 144.2 Mc.

(Continued on Page 12)



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SWAN SW350 MARK III.

My competitor seems to be quite upset by the effect of something he started himself when he introduced the Swan 350 **Mark II. in July, 1965.** This was when Swan Co. of California added full 10 M. coverage, VFO trimmer and VFO ceramic coils to their transceivers, but Swan Co. never made a distinction between their earliest and latest models SW350—they are all plain SW350 to them.

However, these first modifications to the SW350 did not fully cure the drift in the VFO and Swan Company admitted that in a Service Bulletin dated **1st October, 1935.** Incidentally, you will not get a copy of that Bulletin, regardless of whether your set is registered in California, where it should be registered, or in Sydney Swan Company stated that the VFO drift was their major problem with the SW350, regardless of the ceramic VFO coil forms, and then decided, in **October, 1965, to** cut a hole in the transceiver bottom cover, mounted the VFO transistor on a separate panel against the bottom plate as heat sink and, at the same time, incorporated for the first time in their 4 years' history, a **crystal filter unit** made elsewhere This new filter has a **narrower** and **different** filter **passband** response, a feature that others apparently overlooked entirely. I considered these modifications just as important as the reasons for the Mark II classification and christened this latest Swan SW350 the **Mark III.** However, I did not **start** this ball rolling and it is too bad that one's own medicine now tasted bitter

Anyway, this "retailer," who imported over 150 transceivers in 2 years' operation, will continue to be on the alert for significant new developments in Swans and other overseas brands, and will announce the Mark IV. whenever justified. This is in compliance with my self-assigned task to bring the Australian Amateurs the best available at the lowest cost. Without my activities the public would most likely still be paying at the 1963/64 rate of £270 for a U.S. $275 single-band transceiver and £285 for a U.S. $320 tri-band transceiver instead of much more value now in a U.S. $395 five-band transceiver for even less money. Import duties and sales tax burden the cost of imported equipment already more than many purses can afford and the local tariff-protected manufacturers apparently cannot compete. I personally brought the first Swan SW350 transceiver, ever imported in Australia, to two Sydney firms with a blank order to make me 50 similar sets, but they never made me a quote.

As added features from now on my **Swan SW350 Mark III.** will include USB/LSB **sideband selection** and a 100 Kcs. **crystal calibrator** at **no extra cost.** Also the Galaxy V. will have the crystal calibrator as standard equipment, making both five-band S.S.B. transceivers real bargains at A.$600, which also includes a heavy duty 240v. a.c. supply/speaker unit in matching cabinet.

Yes, sideband selection and crystal calibrators as standard equipment at no extra cost!

This "retailer," **exclusive importer** of **Galaxy, Drake, Aztec, Hy-gain** and **Autronic**, appointed **distributor** by the world-wide export agent for **Swan** Co., with more new and interesting lines to be introduced in future (German origin) continues to offer fully imported gear at the lowest prices, with full after-sales service **and** warranty. Unsolicited comments by:

(a) "I have built several electronic keyers and have closely examined your Autronic, but cannot fault it, a marvellous unit."

(b) "With my large full size 40 metre rotary beam I pick up strong local signals outside the Amateur bands that produce spurious responses in other transceivers, but not in the Galaxy III. when properly aligned."

CURRENT EQUIPMENT IN STOCK

Swan SW350 Mark III. or Galaxy V.: USB/LSB sideband-selection, 100 Kcs. crystal calibrator and 240v. a.c. supply speaker unit included, **A.$600.**

AZTEC 12v. d.c. supplies, **A.$90** and **A.$110.**

Webster Bandspanner, all-band centre-loaded whip with bumper or body mounting assembly, **A.$48.**

Hy-gain fully imported **antennae:**
10/15/20/40 meters vertical, **14AVQ, A.$44.** 10/15/20/40/80 meters vertical, type **18AVQ, A.$70.** 10/15/20 M. 3-element junior beam, **TH3JR, A.$96**, same as senior model **"Thunderbird" TK3 Mk. 2, A.$140.** 6-element 10/15/20 M. beam, type **TH6DX, A.$200.** Hy-gain mobile mounts in various types.

Antenna-rotators: Alliance U-98, **A.$55; CDR TR-44, A.$90; CDR Ham-M, A.$180.** All for 230 v. a.c. with indicator/control units.

USED EQUIPMENT, RECONDITIONED A-1

Heath HW-22, 40 M. single band Transceiver, has VOX control, **A.$170.**

Collins KWM-2 with Collins PM-2 a.c. supply/speaker, Collins 12 v. heavy duty d.c. supply and Collins mobile-mount. A real bargain, **A.$1000.**

Hallicrafters HT-37 all band S.S.B. Transmitter, **A.$275.**

Hallicrafters SX 111 Amateur bands A.M./C.W./S.S.B. Receiver, **A.$175.**

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SIDEBAND

Sub-Editor PHIL WILLIAMS, VK5NN

S.S.B. CONVENTION

The second Sidebanders' Convention was held at Hamilton, Victoria, during the long week-end at the end of January, when about 60 users of the s.s.b. mode of transmission gathered. These meetings will be held probably every two years, as those present consider this gives them the opportunity to get along every time. The first was held in May, 1964. The main organiser for the recent function was Ern VK3AEM, assisted by Dan 3ADD, Tim 3TW and last but not least, Ian, an enthusiastic listener.

The main feature of this Convention was its informality to give people a chance to get to know better those whom they have contacted over the air. The Buffet Dinner on Saturday evening and the following Sunday morning lecturettes were enjoyed by all. Delegates with mobiles were "talked" into Hamilton via the station lent by Fred 3YS.

Lecturettes were delivered by Geoff VK3AC on "Mobile Antennae," Arie VK2AVA on "Recent Trends in Sideband Equipment" and Phil VK5NN on "The Compleat Sidebander," after which delegates departed for home, although a few remained at the motel for an extra night to enjoy additional Hamilton hospitality and travel home on the Monday holiday.

Those who missed going to Hamilton '66 should make a note to book in early for Hamilton '68, which is sure to be bigger and better.

LINEAR AMPLIFIERS

Following many requests, the next few months of sideband notes will be devoted to the subject of amplification of the final frequency single-sideband signal, from the low level output of the last mixer in the transmitter, to the full power of some hundreds of watts "peak envelope power" (p.e.p.). I shall not state here what the actual power level permitted by the P.M.G.'s Department is, as this is not yet defined and is the subject of current negotiations with the Department. What ever this level will be, the principles will be the same, the power, current and voltage levels will be within 2 or 3 db. or less than half an "S" point.

We will be mainly concerned with optimum operation of the various stages, from say the class A pentode or tetrode with an input signal of less than 2 volts across a high impedance tuned circuit, to the class B linear power amplifier. The ease and convenience of tuning, band changing, broad banding, maintenance of stability, reduction of intermodulation distortion, proper loading and reduction of radiation of unwanted signals are all very important, and it is hoped to provide some useful tips for the home designer and constructor.

in a box on its own for this reason alone.

Fig. 1 shows a typical block diagram of the recommended arrangement. It is only fair to mention that the class AB1 stage in the exciter may be lifted to the "hundreds of watts" level by adding more tubes of the t.v. line time-base type, e.g. 6DQ5, in parallel and increasing the plate voltage to the 1000v. region, however, this is not recommended as problems such as current sharing, neutralisation, high grid circuit capacitance, and, most important, the heating of v.f.o. components in the vicinity, to say nothing of the increased intermodulation distortion, may become apparent.

It is far better to drop back the level of output required from the exciter to reduce distortion and heating, and use this to drive a conservatively designed (and operated) linear amplifier, rather than to attempt to push the exciter too hard.

As a general rule it is necessary to operate the final linear amplifier with high plate voltage and lower the current requirements for the same power output. As an example it is quite safe

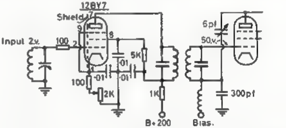

Fig.2 Typical class "A" driver stage - Gain = 25.(approx)

It is usual to employ a 3-stage amplifier at the final frequency to provide the gain mentioned above with all of the desirable features. The first two stages are included within the s.s.b. exciter, the first being class A, and the second a class AB1 amplifier. The final linear stage may be completely separate, and it is desirable to keep it separate, complete with its own power supply and mains r.f. filtering, as the high voltages and currents in the plate circuit can cause havoc with low-powered audio stages, oscillators and mixers in an exciter. It has been known for power increases from the 50 to 100 watt level to the 500 watt level in the shack to cause all manner of troubles. It is a very good idea to keep the final linear

to operate 807's as linear amplifiers with 1000 to 1200 volts on their plates, i.e. twice the steady plate voltage applied to a plate modulated stage.

Valves known to have good linearity, and most transmitting valves come in this class, may be operated conservatively in neutralised, conventional amplifier circuits using tuned plate and grid circuits with appropriate supply voltages. Passive grid circuits, i.e. a low value grid resistor of 50 to 200 ohms, may be used if sufficient drive is available, and neutralisation omitted —this applies to tetrode or pentode stages. Where linearity is not a feature of the tubes to be used, such as the t.v. line-time-base tubes, then neutralisa-

(Continued on Page 12)

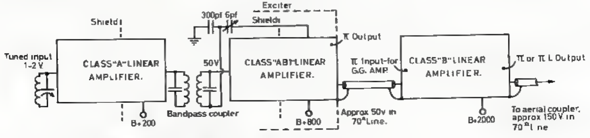

Fig.1. Typical final frequency amplifier for S.S.B. transmitter.

SIDEBAND

(Continued from Page 11)

tion and negative feedback are desirable if they are to be operated at high level.

The application of negative feedback to r.f. linear amplifiers is **not** for Amateur designers, except—and there is only one exception—in the case of the grounded grid amplifier, but there are some tricks and precautions to be observed, and these will be outlined later.

THE CLASS "A" AMPLIFIER

There is not a great deal of choice of suitable valves for this stage, but some tricks of the trade—not always realised by the trade—are worth consideration. Suitable tubes are the 6AG7, 12BY7, 6CL6, 6CH6 and 6870, but the various audio output tubes, e.g. 6V6, 6M5, 6L6, 6AQ5, are less suitable due to their high plate to grid capacitance, which makes stable operation difficult. Twin triodes have been used as cascode amplifiers, and I have used an E180CC computer triode with a Gm of 6300 quite successfully.

Coming back to the first series of video-type tubes, examination of operating conditions shows that most manufacturers invariably put too many volts on the plate and screen and then have a heat problem. Since 50 volts of peak output is required to drive the next stage, then 150 to 200 volts on the plate and screen is more than adequate. The plate current may be run at 30 to 40 milliamps for less than 8 watts of plate dissipation, which allows the stage to operate into a lower plate load, with better linearity, and much higher sensitivity. The advantages are obvious, and the result enables us to use a supply of about 180 volts for the whole of the low level section of the exciter, including the screen of the class AB1 output stage. The reduction in heating in the exciter is important and results in less v.f.o. drift.

Fig. 2 shows a typical 12BY7 driver stage, a tube type currently used as a video stage in Australian t.v. receivers and readily available at a reasonable price. This is a high slope tube and needs to be given all of the shielding and grid-stopper treatment for stable operation. With this it is a good performer.

[To be continued.]

LOW PASS FILTER DESIGNS

(Continued from Page 9)

FILTERS FOR OTHER FREQUENCIES

If one has the element values for a filter of cut-off frequency f_1 and one wants to design a filter cutting off at f_2, simply multiply all element values by the ratio $(f_1 \div f_2)$.

FILTERS FOR OTHER INPUT/OUTPUT IMPEDANCES

The filter values listed above are for input and output impedances of 50 ohms. Conversion to other values—say 75 ohms—is a matter of multiplying all inductances by (75/50) and all capacitances by (50/75).

USEFUL REFERENCES

(1) "Network Analysis and Synthesis," L. Weinberg, McGraw Hill, 1962, p. 601-670.
(2) "Reference Data for Radio Engineers," International Telephone and Telegraph Corporation, 4th edition, 1963, p. 187 228.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK5MS	24	330	VK2JZ	61	256
VK3AHO	51	322	VK4HR	12	248
VK6RU	3	318	VK2ADE	65	231
VK5AB	45	312	VK3TL	82	226
VK6MK	43	307	VK2AAK	58	214
VK4FJ	31	283	VK6KW	4	211
New Members:					
VK2CM	69	100	VK3SM	70	100

C.W.

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK3KB	10	340	VK2AGH	71	284
VK3CX	36	313	VK3AHQ	79	281
VK2QL	5	308	VK2EO	2	279
VK4FJ	39	300	VK6RU	18	265
VK2ADE	81	293	VK3ARX	66	259
VK3NC	19	286	VK3XB	75	255
Amendments:					
VK4HR	8	252	VK5RX	33	335
VK3TL	78	329			

OPEN

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK2ADE	36	332	VK3NC	77	287
VK6RU	8	330	VK4HR	7	281
VK2AGH	83	316	VK2VN	18	276
VK6MK	74	309	VK3JA	43	271
VK4FJ	33	308	VK3TL	85	260
VK2ACX	6	300	VK2APK	82	243
Amendment:					
VK9TL	99	107			

VK-ZL-OCEANIA DX CONTEST 1965 RESULTS

The Federal Contest Committee of the W.I.A. takes pleasure in presenting the results of the 1965 VK-ZL Oceania Contest.

The winners of awards have been listed in the results using heavy type.

AUSTRALIA

C.W.—

Call	80	40	20	15	Total
VK1VK	—	—	2610	—	**2610**
2EO	220	3810	11156	—	**15180**
2APK	55	2260	4545	2440	9300
2VN	—	—	5235	1215	6450
2QL	650	1260	1865	1535	5310
2GW	—	4375	—	—	4375
2QK	—	1845	2225	—	4070
2PV	—	—	3400	—	3400
2IC	—	—	3130	—	3130
2RA	—	275	970	375	1620
(VK2ASI 55 pts. (10 mx.)					
VK3AXK	165	2765	4845	585	**8350**
3MR	—	—	8140	—	8140
3DQ	—	1555	3275	1910	6740
3NC	—	—	5525	—	5525
3YD	—	—	4710	—	4710
3XB	740	1265	1295	345	3645
3APN	—	2920	—	—	2920
3RJ	—	—	—	2745	2745
3ABA	—	—	—	1815	1815
3ABR	—	—	1215	—	1215
3ARV	—	—	695	—	695
3QV	—	665	—	—	665
3YU	—	—	435	—	435
3KS	—	—	110	—	110
VK4LT	—	690	5305	3755	**9750**
4VX	—	—	6740	1290	8030
4SD	—	—	5060	—	5060
4UC	—	—	1735	—	1735
4WO	—	—	1290	—	1290
4XJ	—	—	1285	—	1285
4PJ					Check
VK5FH	—	—	4645	—	**4645**
5MY	—	1775	1780	—	3555
5KO	1235	—	—	—	1235
5BS	—	680	320	—	1000
VK6SM	—	—	4505	3450	**7955**
VK7SM	—	490	2910	1570	**4970**
7DK	—	1325	1580	—	2905
7GV	—	—	925	—	925
7RY	—	—	380	—	380
VK8DI	—	290	2040	—	**2330**
(W7PGX op.)					
8DI	—	—	—	1360	1360
VK9GC	—	—	3500	1200	**4700**
9CJ	—	—	620	—	620

PHONE—

Call	80	40	20	15	Total
VK1VK	—	—	2330	—	**2330**
VK2APK	—	970	5640	1450	**8060**
2KM	—	—	3035	—	3035
2AGE	—	—	2335	330	2665
2ASI	—	—	—	2405	2405
2WD	—	—	2275	—	2275
2AUS	—	—	2190	—	2190
2VN	—	—	1075	—	1075
2ACD	—	—	950	—	950
2APQ	—	—	55	—	55
2ACZ					Check
2MR					Check
2CM					Check
VK3ATN	1125	3000	8585	2375	**15250**
VK3ATN 165 pts. (10 mx).					
3AKS	—	—	3590	—	3590
3LW	—	—	1585	—	1585
3XB	—	575	1150	—	1725
3SM	—	—	1240	—	1240
3ABA	—	—	—	800	800
3VZ	—	—	740	—	740
3KS	—	—	650	—	650
3QV	—	520	—	—	520
3TL					Check
VK4LT	—	55	5680	1595	[illegible]
VK4LT 860 pts. (10 mx).					
4SF	—	—	2950	—	2950
4DO	—	—	2660	—	2660
4VX	—	—	1480	705	**2185**
VK5LC	—	—	2015	—	**2015**
5ZZ/T	—	—	—	1365	1365
5WO	—	—	1125	110	[illegible]
(VK5WO 55 pts. (10 mx).					
5FT	—	955	135	—	1090
VK6SM	—	—	2760	700	**3460**
6XX	—	—	2150	—	2150
6DR	—	—	440	245	685
VK7DK	—	370	3835	—	**4205**
VK8DI	—	—	165	1175	**1340**
VK9XI	—	—	3865	1235	**5100**
VK0GW	—	—	2915	—	**2915**

VK LISTENERS' SECTION

WIA-L2022	**10190**
BERS-195 (VK3)	**7665**
L3185	3040
L3100	6035
L3118	2990
L3233	4370
L3265	1235
L4144	**4280**
L4166	3305
L5065	**4074**
L6021	**11040**
L6029	815

NEW ZEALAND

C.W.—

Call	80	40	20	15	Total
ZL1AJU	55	1825	8585	6440	**16905**
1ARY	—	—	5780	—	5780
1DV	—	—	5755	—	5755
1AWT	—	1680	—	—	1680
1HW	—	—	4960	2690	7650
1OY	—	2025	630	—	2655
ZL2BAU	—	5675	—	—	**5675**
ZL3IS	—	—	2745	2285	**5030**
ZL4BO	1315	4880	2620	1980	**10795**

PHONE—

Call	80	40	20	15	Total
ZL1KG	55	1435	8220	3075	**12785**
ZL3GS	190	325	5975	—	**6490**
ZL4BO	55	155	1585	—	**1795**

ZL LISTENERS' SECTION

ZL149	**9075**
ZL190	7950
ZL1105	2590
Tony E. Magow	2205

OVERSEAS

C.W.—

Asia

EP2BQ	770 pts.	JA6BXA	550 pts.
JA1ACA	360 ,,	JA6DGV	168 ,,
JA1QIP	12 ,,	JA8CLO	12 ,,
JA2AIR	310 ,,	JA7BMK	528 ,,
JA2BNN	2 ,,	JA7FS	1202 ,,
JA2FBA	252 ,,	JA7YAS	48 ,,
JA3CWV	4144 ,,	JA8AC	1296 ,,
JA3DAY	168 ,,	JA0BFO	306 ,,
JA5BJC	1296 ,,	VS6BJ	960 ,,
JA6PY	132 ,,	9M2LO	494 ,,

Europe

DJ5BV	1224 pts.	OK3OM	306 ,,
DM2AND	1360 ,,	OK3CDP	108 ,,
DM2ATD	696 ,,	ON5AZ	147 ,,
DM3XED	8 ,,	OZ1LO	242 ,,
DL7AA	2180 ,,	OZ4PM	260 ,,
G2DC	374 ,,	OZ2BH	754 ,,
G3SSO	1095 ,,	PA0LO	24 ,,
G3WP	Check	PA0VB	80 ,,
G5RI	1751 pts.	PA0DC	42 ,,
G6XN	564 ,,	PA0WAC	Check
I1EVK	30 ,,	SM2COL	Check
LA2Q	24 ,,	SM2CDW	Check
LA7H	152 ,,	SM2AGD	810 pts.
LA5HE	70 ,,	SM3BUS	16 ,,
OH1RZ	1346 ,,	SM3TW	650 ,,
OH1WK	350 ,,	SM4CLU	32 ,,
OH1XX	675 ,,	SM5AMF	400 ,,
OH2BH	Check	SM5DKH	40 ,,
OH2BCD	12 pts.	SM5CBC	Check
OH2BQ	957 ,,	SM5API	488 pts.
OH3AH	586 ,,	SM5BYG	416 ,,
OH3UO	468 ,,	SM5BNX	162 ,,
OH5UQ	340 ,,	SM6CCE	1596 ,,
OH5UX	1900 ,,	SM5BGK	306 ,,
OH5VD	96 ,,	SM7QY	484 ,,
OH6VR	64 ,,	SM7ANB	542 ,,
OH6UX	32 ,,	SP3AIJ	100 ,,
OH7NW	90 ,,	SP6AAK	24 ,,
OK1SM	Check	SP6AAT	16 ,,
OK1ALZ	Check	SP6ANY	24 ,,
OK1US	3 pts.	SP6RT	96 ,,
OK1NK	9 ,,	SP6SO	8 ,,
OK1GO	16 ,,	SP7HX	156 ,,
OK1BY	696 ,,	SP8ARY	46 ,,
OK1AFO	140 ,,	SP9BDH	130 ,,
OK2KGF	Check	TF3AB	48 ,,
OK2QX	160 pts.	YU1BCD	196 ,,
OK3UL	378 ,,		

U.S.S.R.

UA1KBE	48 pts.	UB5IU	96 pts.
UA1KIA	360 ,,	UB5KAI	240 ,,
UA1NA	1 ,,	UB5KBU	12 ,,
UA1SP	72 ,,	UB5KYC	12 ,,
UA1RV	62 ,,	UB5KCI	252 ,,
UA3KAW	132 ,,	UB5RS	52 ,,
UA3ND	24 ,,	UC2AW	33 ,,
UA3UJ	1881 ,,	UC2WJ	138 ,,
UA3KAO	536 ,,	UC5ZE	2 ,,
UA3KBO	910 ,,	UD6BD	44 ,,
UA4ZA	10 ,,	UD6KAB	12 ,,
UA4KKC	312 ,,	UD6KAE	64 ,,
UA6KAF	294 ,,	UH8DP	24 ,,
UA6KAE	60 ,,	UI8CX	24 ,,
UA8NJ	4 ,,	UJ8KAA	506 ,,
UA8PC	42 ,,	UL7CH	190 ,,
UA9WS	56 ,,	UL7GR	40 ,,
UA9HL	Check	UL7KAA	102 ,,
UA9WL	Check	UL7KBK	30 ,,
UA0MX	196 pts.	UL7KBB	48 ,,
UA9KCF	120 ,,	UL7KKB	48 ,,
UA9KTE	128 ,,	UM8FM	351 ,,
UA9KHA	5 ,,	UN1CH	70 ,,
UA0AG	62 ,,	UP2NK	112 ,,
UA0GF	140 ,,	UQ2GA	386 ,,
UA0KCA	1891 ,,	UT5BP	238 ,,
UA0KFG	2091 ,,	UV9UF	42 ,,

Oceania

FK8AH	576 pts.	VR2DK	6236 pts.
KH6IJ	6045 ,,		

Africa

7X2WW ... 6 pts.

North and South America

OA4PW	12 pts.	W6LDD	6417 pts.
PY2CQ	1116 ,,	WA6EPQ	13592 ,,
VE1RB	130 ,,	K7AL	2014 ,,
VE3AU	144 ,,	W7BUE	414 ,,
VO1AW	18 ,,	W8VSK	3312 ,,
W1EVT	3946 ,,	W8DGP	1710 ,,
W4RLS	52 ,,	K9IYK	Check
W4SKI/5	365 ,,	WA0EMS	528 pts.
W5WZQ	1482 ,,	W0CVZ	230 ,,

PHONE—

Asia

EP2BQ	1645 pts.	JA5PY	324 pts.
JA2CWX	568 ,,	JA6NP	7236 ,,
JA3ART	390 ,,	JA6AD	3211 ,,
JA3CLA	372 ,,	JA8BH	24 ,,
JA3CWV	1064 ,,	JA9IL	110 ,,
JA3HLJ	40 ,,	JA0AC	4 ,,
JA4CQS	450 ,,	JA0BNM	2 ,,
JA5AUO	100 ,,	VS6AJ	540 ,,
JA5BJC	216 ,,	ZC4CN	144 ,,
JA8AL	84 ,,	9M2LO	160 ,,

Africa

7X2WW ... 2 pts.

(Continued on Page 14)

MODIFYING PALEC VALVE AND CIRCUIT TESTER

(Continued from Page 2)

voltage to suit, then move slide switches to select valve pins, and insert valve in socket.

"Element Shorts". Set function switch (bottom l.h.s.) to "Element Shorts" and move each slide switch in turn to the "Test" position and return to "Common" position, with the exception of the two selected filament switches. Any continuous glow of the neon globe will indicate which element of the valve has an element short, or is internally connected.

When a valve is found with a short, **don't test,** but tip it out in the w.p.b.

Emission Test: Set function switch to "Merit Test" position. Set "Range Control" to "Palec" test chart number for the valve under test. Depress "Press for Merit" button and read the meter for valve condition, after having ascertained and selected the slide switch for the grid or diode connection under test.

After having completed valve testing, return all slide switches to the common position, as you may leave the filament selector switch on 12v. and come back to test a 1.4v. valve with rather disastrous result to the valve.

Make it a habit to set all selector switches to the correct positions before inserting the valve in the socket.

VK-ZL CONTEST RESULTS

(Continued from Page 13)

Europe

DJ6QT	3312 pts.	OH3TY	80 pts.
DJ7LD	204 „	OH0NC	Check
DM2ATD	64 „	OK1ADP	729 pts.
DL1SV	80 „	OK1AHV	72 „
DL7AA	2128 „	OZ3SK	576 „
DL7KV	90 „	OZ4BH	64 „
G3UML	1080 „	OZ5KG	1520 „
G6XN	1962 „	PA0DEC	125 „
LA4LG	48 „	PA0HBO	344 „
LA7VE	168 „	SM2BHX	656 „
OD5BZ	1161 „	SM3BIZ	632 „
OE1RZ	2040 „	SM3AGD	1066 „
OH1PN	8 „	SM4CMG	552 „
OH2SB	1386 „	SM7MS	Check
OH2XA	486 „	SP7HX	13 pts.

U.S.S.R.

UA3KBD	287 pts.	UJ8KAA	810 pts.
UH8BO	8 „		

North and South America

BP1JC	1089 pts.	K6EKV	5700 pts.
OA4KY	3380 „	W1PYM/6	598 „
PY2SO	8 „	W7BTH	Check
WA5ALB	30 „		

Oceania

KB6IJ 5661 pts.

OVERSEAS LISTENERS' SECTION

DE13664	343 pts.	JA1-5190	946 pts.
DE15431	48 „	JA3-2325	60 „
DE15440	200 „	JA7-1535	273 „
DEA6767	78 „	JA8-1475	870 „
DEA26155	378 „	JA0-1350	682 „
DEA27048	656 „	Atsushi Oosumi	1200 „
DL8-296	1464 „	SM2-3700	836 „
GW7796	328 „	UA9-2847/UA3	333 „
HE9FMO	960 „	WPE4IHI	96 „
I1-11567	34 „	YU2-RS-523	390 „
JA1-1178	648 „		
JA1-4665	96 „		

LIGHTNING

THE maxim, beauty lies in the eyes of the beholder, is particularly apt when applied to lightning. Views range from beautiful, but awesome, to terrifying, dangerous and destructive

It is the dangerous and destructive properties of lightning that concern the electrical engineer. The high voltages in a lightning stroke create problems that he must overcome if interruptions to supply are to be avoided.

Every day there are approximately forty-four thousand electrical storms throughout the world. It is estimated that the actual number of lightning strokes total about one hundred per second.

There is little chance of being killed by lightning unless one is foolhardy. During a thunderstorm it is hazardous to play golf, swim in open water, stand under an isolated tree, fly a kite, or generally remain in the open. Prudent people shelter during storms. The safest shelter is a metal enclosure such as a car or metal-framed building.

Despite almost two hundred years of scientific enquiry, the exact processes which give rise to a lightning flash are unknown. Many organisations are either conducting research or seeking the answers to the problems associated with lightning strokes to electrical apparatus.

The brevity of the average lightning flash, about 1/100,000th second, hampers studies in the field. Most research must be conducted in the laboratory by examining the behaviour of artificially created storms.

Benjamin Franklin was the first to identify lightning as an electrical discharge. During a thunderstorm in 1752, he was able to produce sparks from a key attached to the end of a kite string. Since then various theories, none of which meet with universal acceptance, have been advanced to account for the origin and generation of lightning.

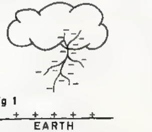

Fig 1

THUNDERCLOUDS—ELECTRICAL BUILD-UP AND STRUCTURE

A thunderstorm appears to be a form of electrostatic generator producing both positive and negative charges. The charged particles then become separated into groups of positive and negative charges in different parts of the cloud

C. T. R. Wilson was the first man to deduce the charge distribution within a thundercloud. He did this by a study of the manner in which the electric field changes produced at the ground by lightning flashes varied with the distance from the storm. He concluded that, in a thundercloud, the upper part is positively charged and the lower part is negatively charged. This deduction has been confirmed by later work.

● The effects of lightning on electric reticulation systems are of great importance to all electric supply authorities. The Sydney County Council maintains a standing committee which keeps the lightning performance of its system under constant review. This committee also ensures that the Council incorporates the latest and most suitable lightning practices.

As the storm progresses it develops an increasing electric potential between its separate parts, neighbouring clouds or the earth. This potential is developed by the gradual accumulation of charge believed to be built up by the action of falling rain, snow, ice pellets, or some other unknown natural process.

Potential differences may reach values as high as 100,000,000 volts. The transient currents produced are in the range of from 3,000 to 200,000 amperes.

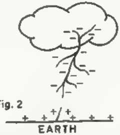

Fig. 2

LIGHTNING—THE ELECTRICAL DISCHARGE

It is believed that lightning strokes may be started with potentials of the order of 5,000,000 (or more) volts between cloud and earth.

Photographs of lightning strokes have been taken by a special moving camera based on a design by Sir Charles Boys. Use of this camera has disclosed that the lightning flash consists of a number of successive strokes which follow the same track. These strokes occur at intervals of 1/100th of a second, and the average number of strokes is three.

However, as many as 47 have been recorded in a single flash.

A lightning stroke is initiated by a streamer or pilot leader developing downwards to the earth from the negatively charged base of the cloud (Fig. 1). The current in the leader is not high, probably less than 100 amperes.

As the leader approaches the earth the gradient at the earth's surface becomes great enough to cause a short streamer to rise from the earth (Fig. 2). Eventually contact is made and the high current flow associated with lightning occurs (Fig. 3).

This high current flow has a short duration peak and is followed by a low current long duration tail (Fig. 4). The low current long duration portion of a stroke is not disruptive, but will cause fires in flammable material. For that reason, low current lightning is known as "hot" lightning.

It is the so-called "cold" lightning, with its high current peak, that is so damaging to electrical apparatus and reticulation systems. Its destructive effects are seen in any high resistance medium. A lightning discharge flowing in a good conductor earth will not injure that conductor.

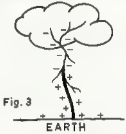

Fig. 3

Most lightning discharges occur within the cloud itself. The higher the cloud the easier it is for the discharge to pass between the upper (positive) and the lower (negative) sections of the cloud than it would be for a cloud to ground stroke.

Internal flashes do not usually appear as lightning strokes, but rather as general illumination in the cloud. This is due to the refraction of the light on the myriads of water droplets within the cloud.

There is no known method of either preventing or resisting the power of lightning strokes. For the time being, mankind has to put up with them. All the electrical engineer can do is to coexist with lightning and to divert it from installations where it can do damage.

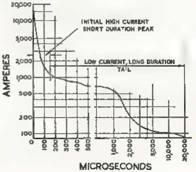

Fig. 4. Record of current in a direct stroke to the Cathedral of Learning, University of Pittsburgh, June 10, 1939.

Reprinted from "The Contactor," September, [illegible].

LIGHTNING PROTECTION

Protection from lightning is achieved by either one of two methods or by a combination of both.

Shielding is the provision of a conductor which intercepts the lightning stroke and conducts the electrical discharge harmlessly (it is hoped) to earth.

The other method is by the use of lightning arresters. By providing a bypass around insulation, these allow current in a reticulation system to leave without causing either damage or an interruption to supply.

SHIELDING—USE OF LIGHTNING CONDUCTORS

Lightning conductors, which take many forms, shield a building, tree, mast or other object by attracting flashes which would otherwise strike either the object on which the conductor is placed or its immediate surroundings. Having attracted the stroke, the electrical discharge is passed to the earth.

When the path of a pilot leader approaches the earth remote from a conductor its course will not be influenced by that conductor. An upward streamer starts from the earth itself and the stroke is completed (Fig. 5).

Fig 5

Should the pilot leader be close to the conductor the potential gradient experienced at the end of the conductor produces a short upward streamer from the conductor. This upward streamer meets the pilot leader and the contact is made. The subsequent lightning discharge flows to earth via the conductor (Figs. 6 and 7).

Any lightning stroke headed towards the earth within a certain distance of a conductor will be attracted to that conductor. The area of attraction surrounding a conductor is known as the shielded area.

Good shielding is provided when out of every 1,000 lightning strokes only one strikes the shielded object, the other 999 being attracted by the conductor. This is known as an exposure of 0.1 per cent. The shielded area depends upon the configuration of the conductor. In the special case of a rod or mast the shielded area is that covered by a cone whose apex is the top of the conductor with its surface forming an angle of 30 degrees to the vertical (Fig. 8).

The only way to ensure complete protection from all strokes is by practically surrounding an object with a conducting shield.

Multiple rods increase the shielded area between them to a greater extent than the sum of their protected areas. This increase, although appreciable, may not be generally recognised.

A popular fancy is that lightning current has a tendency to jump from any sharp bend in the conductor. This type of flash-over occurs only when a nearby object offers an easier path to earth than does the conductor itself.

Fig. 6

The prime requisite with all shielding devices is that they be well earthed. Failure to ensure first-class earthing can mean damaging side flashes as the discharge seeks an easier path to earth.

Possibly the earliest use of lightning rods or conductors to provide effective shielding was in the 19th century. Lightning conductors were fitted to the masts of the wooden ships used by the Royal Navy.

High voltage transmission lines are usually shielded by means of one or more wires suspended above the line conductors. These wires are earthed through each tower. When erecting transmission lines, engineers make a thorough check of the earthing of each tower. If found to be inadequate, long wires known as counterpoises are bonded to the tower and buried in the ground to form a radial pattern around it.

Shielding will not prevent the line conductors from being subjected to transient voltages during a lightning stroke. However, it will usually keep the transient voltage below the flash over voltage of the insulators.

LIGHTNING ARRESTERS

Protection of equipment is usually carried out by means of surge diverters, more commonly known as lightning arresters. These devices provide an easy path to earth for the lightning current, yet prevent the normal supply current from following. Once the lightning current has been passed to earth the arrester must rapidly re-establish itself as an insulator to prevent power current following.

The name "lightning arrester" is not really correct. The device is actually a lightning diverter and a power current arrester.

Fig. 7

(Spark g ps are sometimes used instead of arresters. They are less expensive and if the gap spacing is correctly chosen they will prevent damage to costly apparatus, but do not avoid interruptions to supply.)

Lightning arresters are generally of two basic tyres: expulsion arresters and valve arresters.

The expulsion arrester consists of a tube with an electrode at each end. The tube is made of a material that, under the heat of an arc, will create a gas (the tube may even be filled with gas-producing material).

In operation, the lightning current causes the electrode gap to break down. An arc is formed and this is maintained by the power supply voltage. The heating liberates gas at a rapid rate and the arc is blown out of the tube by the gas, lengthening it and interrupting the power follow-on current.

As the explosive nature of the discharge is related to the fault current there is a maximum current which an expulsion arrester can handle. Such arresters are usually employed on systems with moderate fault duty.

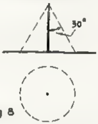

Fig 8

The rapid arc extinction of the expulsion arrester can give rise to transient overvoltages which are damaging to certain types of equipment.

The so-called valve arrester avoids this trouble and is consequently more often used.

It consists of a number of arc gaps in series with blocks of resistance material having an inverse resistance characteristic, i.e. the resistance decreases as the voltage increases.

At high lightning voltages the blocks have negligible resistance to the passage of current. At the lower power frequency voltage their resistance has increased and the current is reduced to the point where it can be interrupted by the gap.

The process described is a more gradual way of preventing follow-on power current than that employed by expulsion arresters. Both types of arresters divert the lightning current to earth yet avoid power interruptions.

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CONTEST CALENDAR

16th/17th April: C.Q. W.W. DX S.S.B. Contest.

7th/8th May: U.S.S.R. DX Contest (c.w. only on 3.5 through 28 Mcs.)

4th/5th June: CHC/FHC/HTH QSO Party.

9th/10th July: R.S.G.B. 1.8 Mcs. "Summer" Contest.

24th/25th Sept.: R.S.G.B. 21/28 Mcs. Phone Contest.

V.H.F./U.H.F. STATE RECORDS—MARCH, 1966

NEW SOUTH WALES:					
50 Mcs. :	VK2ADE	to	VE7AQQ	8/4/59	7320 miles
144 „ :	VK2ZMR	to	ZL3AAH	8/1/65	1410 „
432 „ :	VK1VP/1	to	VK2ZPT	14/8/65	178 „
576 „ :	No claim				
1296 „ :	VK2ZAC	to	VK2ZCF/3	4/2/66	46.8 „
VICTORIA:					
50 Mcs. :	VK3ALZ	to	XE1FU	1/5/59	8418 miles
144 „ :	VK3ZAA	to	ZL2HP	9/12/65	1681 „
432 „ :	VK3ZDM	to	VK7LZ	8/1/66	313 „
576 „ :	VK3AKE	to	VK3ANW	11/12/49	80.7 „
1296 „ :	VK3OB/3	to	VK3AUX/3	23/1/66	3.0 „
2300 „ :	VK3XA	to	VK3ANW	18/2/59	9.0 „
3300 „ :	VK3ZGT/3ZGK/3	to	VK3ZDQ/3	14/12/63	63.5 „
QUEENSLAND:					
50 Mcs. :	VK4ZAZ	to	K6ERG	18/3/58	5305 miles
144 „ :	VK4ZAX	to	VK7ZAO	27/12/61	1107 „
No other claims					
SOUTH AUSTRALIA:					
50 Mcs. :	VK5KL	to	W7ACS/KH6	26/8/47	5361 miles
144 „ :	VK5ZHJ	to	VK6ZCN	8/1/65	1330 „
432 „ :	VK5AW	to	VK3AEE	13/11/64	336.5 „
576 „ :	VK5ZTM/5ZFQ/5	to	VK5ZIS/5ZJH/5	4/1/63	105.5 „
1215 „ :	VK5LA/5	to	VK5ZCR/5	4/1/63	1.0 „
WESTERN AUSTRALIA:					
50 Mcs. :	VK6BE	to	JA6BP	30/10/58	5490 miles
144 „ :	VK6ZCN	to	VK5ZHJ	8/1/65	1330 „
432 „ :	VK6ZDS	to	VK6LK/6	30/5/64	33 „
576 „ :	VK6ZDS	to	VK6LK/6	15/12/63	101.2 „
TASMANIA:					
50 Mcs. :	VK7LZ	to	JA6IL	3/12/59	5436 miles
144 „ :	VK7ZAO	to	VK4ZAX	27/12/61	1107 „
432 „ :	VK7LZ	to	VK3ZDM	8/1/66	313 „

No other claims.
N.B.—Australian Records in bold type.

SWL

Sub-Editor: D. GRANTLEY, WIA-L2022
Alexander Ave., Hazelbrook, N.S.W.

From time to time the question of low percentage of returns to listeners' reports is discussed amongst members, and many but varied are the reasons given. One person who is qualified to speak on this problem is Frank Hine VK2QL, himself a former s.w.l. and an Amateur of 27 years' standing, much of this time being spent in conducting the VK2 QSL bureau. Recently Chas. Abernethy approached Frank on this matter, and here is his answer. I quote "The lot of the s.w.l. is not, and from my experience never has been, a very happy one from the QSL point of view, and my experience is as s.w.l. when I won the s.w.l. section of the Melbourne centenary contest in 1934, as an Amateur of 27 years' standing, and running a busy VK2 QSL bureau. A lot, but by no means all of the cause can be laid at the door of the s.w.l. himself. There is very little chance of anybody including some Amateurs, of obtaining a QSL from some of the Amateur fraternity, because they don't believe in QSL's. Whilst Amateurs are promised a card during a QSO they never arrive. I can never understand why Amateurs go on a DX-pedition and never send a QSL. This is rare, but does occur, generally in Europe. I know that all QSL's for Amateurs who do not believe in them are confined to the rubbish bin and amongst them, if he is very active, will be some from s.w.l.'s. I have heard Amateurs say they do not QSL, yet cards arrive at the bureau for them. Even the S.A.S.E. does not bring results. My mind goes back many years when one Amateur was quite open that he used the stamps for his own purpose.

"Referring to my earlier statement that s.w.l.'s are to a large extent to blame, I give these reasons. Firstly, the cards often list the call sign for a station that it cannot possibly be for. Be absolutely sure that you have the call sign correct. I received a report from Europe for 00 G.M.T. on 80 metres. Of course a pirate could be at work. Secondly, a report is often sent from a QSL on the wall of an Amateur's shack. The time lag between date of report and date of receipt is too long, and sufficient time has elapsed for the Amateur's QSL to be received by the DX station. S.w.l.'s don't normally take six months or more to originate a report. Thirdly, the report 'heard you calling CQ' often comes to light. This could be so, but could also be an easy way to score a card from some unsuspecting Amateur by picking calls out of the call book. Many s.w.l. cards come to the bureau for non-active Amateurs. Fourthly, the QSL reports the transmitting station working a station in the s.w.l.'s home town. This report means nothing and should be avoided. An Amateur is more interested in knowing if he is working VK to G, to get a report from ZS. This really is of value." To interrupt Frank's material here, I would like to add a few lines received this week from Chas. VK4UC, who says: "a couple of YU s.w.l.'s sent me their cards in the same envelope direct by air mail nine months after I had confirmed the same QSO for YU s.w.l. living in the same town."

Finally, Frank goes on to add that replies from the DX stations are sent to the various QSL bureaus of the world, and if the s.w.l. is not a member of the Amateur Radio society of that country and does not have any arrangements to collect cards, then delivery is impossible. Some of the calls used by VK s.w.l.'s make it impossible to trace the owner of the QSL. So there you have it chaps, just a few reasons why listeners don't always get the replies they feel they should. Thanks, Frank, for your comments thus far, and your further comments on QSL's will be included when I get further information from the P.M.G. on certain overseas postal charges.

PERSONAL

Mac L2074 just back from VK7 has managed a few points in the Ross Hull on 6 metres, but is suffering from t.v.i. in reverse. Bryan Prosser of VK5 sends in a very interesting report via the tape recorder. Listening on 20 metres he logged KZ5, YS1, SM6, OD5, CR6, MP4 and ZP5, whilst 15 metres shows loggings from Europe. Geoff Taylor, also of VK5, heard OZ7, PZ1, PA0, VR2, EL4 and many others of 20, whilst of 15 ZC4, JA, DL, VU2 and G made their appearance. Tony Wege L5073 just back from a VK2 holiday reports loggings on 20 a.m. of W, ZS5, HB9, VU2, 5Z4JW, 9V1GZ, CT1SQ, with cards received from VK9XI, W's and VK9GS. Bob Halligan L3229 has been concentrating on the v.h.f. bands and did very well in the Ross Hull on 2 metres. During the past year Bob sent out 505 cards for a 12% return on h.f., and 68% on v.h.f. Cards to hand KC6AQ, TF3EA, CT1PK, VE2RB, XE2IW, PY2SO, FR7ZD, PA0FX and OZ5BW. Don L2022, concentrating mainly on 20 c.w. heard JT1KAA, 9Y4J, CR9AI, ON4DY, XW8AX, FO8AA, FB8YY, LA1H, 4U1ITU, FU8AG, HS1JO to name but a few. At this QTH, high in the Blue Mountains of N.S.W., 7 Mcs. has been loaded with DX from all over the globe from about 5 p.m. local time, whilst there are still regular openings to Europe of 15 metres at the same time. Peter Drew L6021 has been very quiet and the only stations of note to report are 9L1HX, HR1HC, HZ3TYQ/8Z4, VQ9HB, 7Q7PBD, CT1SQ, TU2BD, 9V1ME, all on 20 metres s.s.b. Ernie Luff L5080 heard nearly everything there was to hear, MP4TBO, W, MP4GO, DU, KG6, ON4, DJ, VS4, VS5, SM, LU, CR4, UA, KZ5, OD5, GB3RS being just a few. Ernie is now Secretary to the Elizabeth A.R.C. in VK5. I would like to publish the list of cards Ernie has received since 1964, but it is far to long, however, a glance through it is sufficient to prove that if the listener goes the right way about it he will get all the cards he needs. Warwick Smith, of VK3, has just returned from VK2, where I had the pleasure of meeting him for a week-end during February. A keen and thorough listener, he is now hard on the heels of the top three members of the DX ladder. From Eric L3042 we have a list of statistics for 1965, a careful perusal of which will prove that a higher percentage of QSL's will be received where greater care is taken in preparing reports. Eric sent out 1318 for a QSL return of 607 being from 106 countries in 35 zones. During the year he heard 149 countries in 38 zones plus 33 ships and 13 mobiles. Total log entries in 40 years' listening are very rewarding for Eric, who reports such 290,100. Listening this year so far has been calls as UA9, UC2, UJ8, UA3, LZ2, W, OK, DL, JA, YU, UL7, PA0, OE, OZ, G and JA/MM on 80 metres c.w. On 40 metres DU7SV, CR9AH, VS9MP, UD6AV, UH8CI, G3PUW, F and YO were some of the more interesting loggings, whilst on 20 metres EP2EZ, ZK2AF, HP1IE, VU2KX, HS1SW, VS6FO, FR7ZD, 9M4MY, 9M6KS, OD5EE and many others provided our No. 1 S.w.l. with an excelent beginning for the year. At the risk of repeating myself, I often wonder why more attention is not paid to the 80 metre band by the s.w.l.'s who can copy c.w. There is often a host of DX on it in the early morning much of it readable. L5080 Ernie Luff for a second over, Ernie has just received QSL's from VS5MH, HI8JGM, 9M6AP, KP4RK, OK1GT, LU6MR to bring his score up to 87 confirmations. Also the E.A.R.C. have issued the Elizabethan award to him. Keep it up Ern.

BAND SUMMARY

From the preceding notes it is evident that all bands are active in some shape or form. Ten seems to open very briefly on very irregular times, whilst 15 provides good DX in all States from mid-morning to later afternoon. 20 metres as usual provides the bulk of the s.s.b. DX and is open to all States for almost 24 hours a day. On the 7 Mc. band the conditions are almost hopeless due to commercials, but for the c.w. men both this and 3.5 Mc. provide plenty of good countries.

DX NEWS

Here are some more QSL managers to make the cards flow a little faster. For HV1CN operation in 23/27/28 Nov., 1965 (K9BPO), FL8MC (W7WLL), TY3ATB (VE2ANK), VQ8BFA (G5KS), ZD7RH (G3IO). ZD9BE requests all QSL's via the ZS Bureau. VP1JKR (VE3ACD), VP5AR on Turks (WA8GUA). The following are in the hands of Jack W2CTN: 9H1R, 9M6BM, VS9MP, VR2EK, VP6PJ, OH0AM/0, KV4CI, KC6FM and FK8AT. MP4TBE is the call sign of the Amateur Radio Club BFPO 64, Sharjah, Trucial, Oman. FK8AC (Box 104), FK8BG (Box 97) and FK8BH (Box 637) are all Noumea, New Caledonia, and could be very helpful in securing a card from that country. JT1KAA still pounds into this QTH on 20 metres with a T8 signal in the mid-evening. Dr. Henry Stockwell, Box 72, Mona, Jamaica, whose call is 6Y5SB will be pleased to hear from listeners. VK9JO is on Cocos and puts in a fine signal down to VK2. ZL4CH is Campbell Is., whilst VK9's DI and GN are T.N.G. ZS3E was heard here recently, his QTH being Box 262, Luderitz, South Africa. VS9AE, Box 1184, Steamer Pt. Aden. "Monitor."

GROUP NOTES

I regret to say once again chaps that no official notes have arrived here from any division, so please don't blame me for their deletion. Any members or groups desirous of reporting in by tape, you are welcome provided you use twin track only, at either of the three standard speeds. Delay on reply to those tapes should be about a week from date of receipt. Machines in use here are Pye UG7, and A.W.A. Robuk. At present I am in regular contact by this mode with Doug Head, Alan Raftery and Bryan Prosser of VK, and I.S.W.L. member Bernard Hughes. This is a most interesting phase of the hobby, and one which could well be used and encouraged by members who are anxious to see the s.w.l. movement flourish. To save possible damage to tapes which could be left in the sun for long periods of the day, I would advise any users to send them to the box number quoted earlier.

QTH'S WANTED

Many queries come to hand here for the QSL addresses of overseas stations. Many I am able to answer by letter from information on hand, however, I am often required to seek outside assistance from other s.w.l.'s who have a keen DX interest. At the suggestion of Chas. VK4UC, who has offered to assist, we will try and make this a regular feature. So chaps if you have any queries or answers, drop a line to me at the following address: D. Grantley Box 222, Penrith, N.S.W. All regular mail, however, to the normal address please.

Bob Mutton L7031 wants QTH or manager for HS1IM, VS9AHE, also VK9TL heard after Ken 3TL returned to VK3.

Bob Halligan L3229 wants KG6IG, VS9OC and ZB2AL.

Don L2022 looking for EL2AF, OH5VD, YJ1DL and LX1TP.

DX LADDER

Next appearance in "A.R." will be in the May issue and I would appreciate any notes by April 26. Only changes of note take Warwick Smith to 120 confirmed, and my own overall score to 305 heard. That's all for this month chaps. 73 de Don L2022.

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U.S.S.R. DX CONTEST

Aim: Each Amateur to contact as many other Amateurs as follows.

Date: 2100 G.M.T., May 7, to 2100 G.M.T., May 8, 1966.

Logs: A minimum of 12 hours' operation is necessary for a log to be valid. All contest contacts must be shown.

Stations other than those in U.S.S.R. send a serial number 599001, 599002, etc. U.S.S.R. stations send a number consisting of RST plus his oblast.

Logs must be addressed to R.S.F., Box 88, Moscow, U.S.S.R., and postmarked not later than 1st June, 1966.

Activity
(1) C.w. only on 3, 5, 7, 14, 21 and 28 Mcs.
(2) One contact per band.
(3) Contacts between stations of the same city are not permitted.
(4) Participants to call "CQH."

Scoring: 1 point per contact.

The total score is determined by taking the sum of all contacts on one band and multiplying this by the number of countries worked on that band. The all band score is determined by adding the scores of individual bands.

DX

Sub-Editor. ALAN SHAWSMITH, VK4SS
35 Whynot St., West End, Brisbane, Qld.

Reports this month indicate that "Ole Man Ionos" may be showing a trace of "liver." Generally, DX worked seems a bit thin, but this short phase is already one the way out, so keep an ear at the receiver, lots of good prefixes are due to show up.

NOTES AND NEWS

Jan Mayen LA5CI/P around 2100z on 14,235. QSL LA1NG.

Syria, Rasheed: YK1AA on every day s.s.b. 1400-1500z, 14,215-14,225 Kcs.

Albania, ZA Land: Reports of activity from ZA1AAA are to hand, but probably phoney—also rumours that a ZA operation will occur shortly No more information.

Bajo Nuevo. HK0AI expected to be on from here soon—possibly April.

Rio De Oro: EA9IC is to be activated from April 2-10 with EA2CA on s.s.b. and EA4CR on c.w.

Laccadive Islands: This spot should be heard from shortly, with VU2NR and others operating. No other information available.

Juan De Nova, etc.: This one by Jose CR7GF set for April 1

Franz Joseph Land: Victor UA1KED very active daily from 14,121 Kcs. s.s.b., usually working 14,200-220. No operation Mondays and Fridays. 0530 and 2130z. QSL's via Ernst Krenkel, Chapligin St., 1-A Moscow, U.S.S.R.

Gabon Republic: TR8AD Max on 20 mx s.s.b. around 2000z. 14,231 Kcs. QSL to Box 1035, Libreville, Gabon Republic

Vietnam: Bill Porter operating as K1YPE/XV5 heard on 14 250, 310, s.s.b., as well as 20 and 15 mx c.w QSL via W4UWC.

Angola: CR6EC Ernest on daily from 2000z, 14,220-230 Kcs. QSL via K4ISV

Ivory Coast. TU2BD (ex-XT2HV), Gilbert is active. QSL B.P 2261, Abidjan, Ivory Coast. Also Pierre TU2BA on 14,203 at 2300z.

Monaco: Jean 3A2XX, on 14,043 at 1430z. QSL to F2IC.

Laos: Bill XW8AX, 14,242 at 0030z. QSL via W6KTE. Also XW8BD on 7 and 14 Mcs.

Somali Rep.: Smitty (ex-TU2AU) 6O1AU, on 14,110 at 2000z. QSL via VE4OX. He is due back in FL8 land soon.

Sierra Leone: 9L1TL on 21,047 at 1730z, and 9L1BC on 14 Mcs. c.w. at 2000z. QSL for BC via W2CTN.

Republic of Congo: TN8BK at 2050z on 21,264 a.m. fone.

Ceuta Y Melilla: EA9AY reported on 14,037, at 1830z. Call Book QTH is O.K.

Swaziland: ZD5D Dave on 14,197, working 10 up, at 1900z. QSL's via WB6CWD.

Curam Island. ZS1RV said to be operating from this island. Possibility of this qualifying as a separate D.X.C.C. country, as it is supposedly under separate jurisdiction.

Antarctica ZL5AA (Ian, formerly ZL4JF) now on this New Zealand Antarctic Station. Worked at 0700z on 14,240. QSL to ZL2GX.

Senegal Republic: Among active stations are 6W8DG Ahmed, on 14,006 at 1230z. L.P. 6W8AG and 6W8BW on 7 Mcs. c.w.

QSL Information. W1BPM advises W2WMG that he presently handles the QSL chores for the following TT8AW, TR8SW, ZS2GF ZS6OS, ZS8E and 6Y5AM Cliff 7Z3AA, who is stateside for a vacation, says that anyone needing a card may send to W8GCN before April 24 when he leaves for 7Z land again. 9M4LP cards now via W2CTN W6FMM/DU1 QTH is B. H. Brunumier, New Tribes Mission, Box 2570, Manila, Republic of Philippines. (LIDXA)

Marion Island: Harold ZS1CZ, QSL manager for ZS2MI says he has not received any logs since September last. So those waiting for cards will have to be patient. Activity is expected to cease from here in about 3 months.

Iraq: HZ1AT/8Z4 cards are not being accepted for D.X.C.C credit. Unauthorised operation.

(Much of the above supplied by the courtesy of LIDXA.

Saint Martin: FS7RJ worked 14,110, 0700z. (VK4UC.)

Mongolia. JT1KAA, JT1AD in Zone 23. 14,050 Kcs. 1000z, also 7 c.w (VK4UC.)

Formosa BV1US, Howard reports a big backlog of QSL's to be sent out. So please be patient. VK4UC.)

East Caroline Is.: KC6BW, 14,110, s.s.b. on Panope QSL W7TDK. (Chas. L4018.)

Singapore In answer to enquiries 9V1 is the new prefix for this country. Operative from 1/2/66.

China: BY3AAB has been active on c.w., 14,050 Kcs. at 0830z, also on c.w 14,050 Kcs. at 0040z. Both worked on G2DC.

St. Vincent Island: VP2SJ Harold has been active on c.w. from here, 14,060 Kcs., 1330z. QSL as per call book.

Korea: HL9KF has stated he is returning to the States April 30. QSL W0GLZ.

Adelaide Island. VP8IP is active from here, c.w. 14,020 or 14,044 Kcs.

South Georgia: VP8HO Jack Biggs is now back here for a two-year stay.

South Orkneys: LU1ZA is active on a.m. 14,279 Kcs. around 2000z.

South Shetlands: LU1ZC Daniel on c.w. 14,048 Kcs. Paul on a.m. 14,350 Kcs.

(The above by courtesy of Jim G3UGT "Air Waves.")

Rockall Is.: Latest on this is that activity is expected by next June or possibly earlier if it can be arranged. More information if it comes to hand

Wallis Is.: FW8RC reported active from VK and overseas source. 14,123 s.s.b. QSL FK8AU.

Aden: VS9AHF, 21,375 around 1700z. QTH O.K. in call book.

Iran: EP2RV will be active late March and into April. QSL G5RV.

Surinam: PZ1BW still QRV 14,230 at 2000z. QSL via VE3EUU.

Desroches: G8KS will be QSL manager for this stint. Harvey VQ8HB will shortly leave for this rare spot. After April 15.

Stop Press from LIDXA.

Ethiopia. ET3AC Blake on 14,345 at 2100z. QSL via K8UZA.

Swan Is.: New call is KS4SA. WA4PYP is handling the QSL's.

Albania: Latest call is ZA2BA, 14,065, 1800z, who says QSL via Bureau (?). Sounds phoney.

Ivory Coast: TU2BA Pierre. 14,115 at 0000z.

Laos: XW8AZ. 14,115. QSL W6KTE. On for several months. XW8BD also active 7 and 14 c.w./s.s.b.

Aldabra: Jose CR7GF now has his licence for this one. and should be there beginning April. Glorioso and Comoro will probably be next, then Juan de Nova.

Central African Republic: TL8SW Sid on 14,247, working 5 up and/or down.

Stop Press from Jim G3UGT "Air Waves."

Peru: OA4PQ is active s.s.b. on 3700 Kcs. around 0710.

Benin Is.: KG6IG is active on s.s.b. on 14,200 Kcs. around 0600z. QSL W3KTY.

Malpelo Is.: HK3RQ and others are planning to be active from here in June.

Maldive Is.: Ston VS9MP still on 80, 40, 20 c.w./s.s.b., also Club Station VS9MB on 14 s.s.b. Ston leaves for home, U.K., in June. Best freq. and times to QSO are 3.505, 1830z, 7007, 1900z, 14,005 or elsewhere after 1200z.

ACTIVITIES

Ken VK3TL lists these right up to the minute QSO's: CN8MR, DU0DM, FW8ZZ, FW8RC, K1SDS aero, KS4CA (Swan Is.), VP2ME, UA1KED (Franz Joseph Land), VP7NA (Scott's Base), 7Z3AB, 9V1GZ.

Best QSL'S received

VP9CP, 9L1HX, TI4JF, HI8RSD, HI8XMT, KX6SZ EBON, TI0RC, LX1DE, HI8XAL, XW8BM, 1S9WNV, W9WNV/ZM7, BY4CK, YJ8WW, FR7ZD, ET3FW, 5R8AJ, OY3B, FO7XL, HV1CN.

Dud VK4MY says conditions on the Gold Coast not good, so getting a tan in the garden but did manage these on 14 c.w.: OD5LX, VQ8BL, OE7RMI, VS9AJH, KR8OJ, UP2KNP, IT1AQ, TI2AM, VS6TQ, UD6BD, FW8ZZ, 9V1NM, VR1Z, VU2UV, etc.

Pete VK4PJ basking in the luxury of a Galaxy logged these XW8BM DL4EQ, UA0SK, YA1AG, 5M5CHN, G2ANN, UB3WJ, OZ6EE, G2BOZ, AU1FL, DC3HU, VP2AA, VE3DFM, VE2NK, VE3GO, VE2AUU, VE2AJU, DU0DM, 9G1DU, VP5AB, YV5BO.

Chas. VK4UC reports working the following on 14 c.w.: KC3AAD, XW8BM, 5Z4DW, JA8AA, VR1Z, F8IW, DM2AND, SL5BO, UA6BL, 9M6BM, LU2DAW F7DO, 9V1NM QSL's to hand from F3ZU, UC2KUA OZ2RH, [redacted], LA5HE, PE2EVO, VQ9J, 9M6DH, HS1C, G3IJX, G3IYT. Most of the above QSO's were worked between 0700z and 1400z.

QTH's

XW8BD—Box 402, Vientiane, Laos.

VP2ME—Via Hammarlund.

ZL5AA—"ZL2GX."

VP7NA—P.O. Box 5321, Nassau.

XV5AA—W4UWC.

KS4CA—WA9OVE.

DU0DM Box 4083, Manila.

FK8AU—Raoul Thomas, P.O. Box 637, Noumea.

FW8RC—Via FK8AU.

SUMMARY

Ham YL Pen Friends Rolf Suleng, of P.O. Box 162, Bergen, Norway, who is a Class Radio Instructor, teaching code to operators in the Merchant Navy, writes and says that 40 per cent. of his class pupils are YL's and quite a few expect to visit VK later this year or early next. Some may eventually become Hams, and many are anxious for s.w.l. and Ham friends.

Here's a chance for the young bloods here in Australia, to promote VK, A.R. and probably themselves as well. Write in the first instance to Rolf Suleng at above address, giving a few details of yourself and Radio interests, etc.

My gratitude to the column's contributors LIDXA, Fla DX'er VK3KB, VK4UC, VK4MY, VK4PJ VK3TL, L4018 and Jim, G3UGT of "Air Waves."

NEW CALL SIGNS

DECEMBER, 1965

VK1MT—V. P. Koenig, 16 Norman Street, Deakin

VK1ZSW—A. S. Waight, Station: Flat 3, Northside Heights, cnr. Know and Irvine Streets, Watson; Postal, P.O. Box 316, Manuka.

VK2EV—W. B. McIntosh, "Warwick," Warwick Road, Cowra.

VK2WL—L. R. Hodge, Flat 18, 50/60 Curtis Road, Balmain

VK2ADR—J. D. Hunt, 29a Cabramatta Hostel, Cabramatta

VK2ARY—H. V. C. Randall, 9 Dibbs Street, Coff's Harbour

VK2BAO—B. A. Hancock, 56 Adderley Street, North Auburn.

VK2BBB—The Steadfast Radio Club—Station: Cnr. Leonard and Stanley Streets, Bankstown; Postal. P.O. Box 231, Bankstown.

VK2BKO—M. G. McIntosh, 10 Nielson Street, Lismore.

VK2BRE—R. F. K. Evans, 5 Catherine Street, Gwynneville, via Wollongong.

VK2ZAV—G. J. Anderson, 30 Hume Road, Cronulla.

VK2ZCM—J. Linden, 76 Arthur Street, Enfield.

VK2ZIA/T—L. W. Avery, 50 Rose Street, Ashfield.

VK2ZJX—J. S. Hodgkinson, C/o 2GZ Radio Station, 31 Sale Street, Orange.

VK2ZGI—R. J. Richards, 21 Fitzsimmons Avenue, Lane Cove.

VK2ZLE—M. E. Latham, 33 Margaret Street, Fennell's Bay.

VK2ZMF—J. P. Foran, 4a Gerrish Street, Gladesville.

VK2ZRA—R. J. Anderson, 37 McLachlan Avenue, Long Jetty.

VK2ZZR—R. J. Waller, R.M.B. 141, Gerringong.

VK3AFV—G. V. Lancaster, 61 Aylmer Street, North Balwyn.

VK3ZQG—P. J. Jacquemin, 48 Sargood Street, Altona.

VK3ZTA—L. Zachech, "Parkside," Hamilton.

VK3ZTB—T. R. Bird, 9 Hosken Street, North Balwyn.

VK3ZTC—A. N. Richardson, 38 Aberdeen Road, South Blackburn.

VK3ZTE—G. L. Symons, 117 Fawkner Street, Essendon.

VK4EQ—E. P. Bahr, 187 Bowen Road, Townsville.

VK4TH—F. W. Chapman, 17 Shaftesbury Street, Ekibin

VK4TJ—W. J. Melville, 51 Beut Street, Toowong.

VK4ZNT—N. Stuttard, 20 Stevens Street, Yeronga.

VK4ZPD—D. J. Parker, Station: 84 Galatea Street, Charleville; Postal: St. Leo's College, St. Lucia

VK5GI—G. K. Jenkins, 3 Crozier Terrace, Oaklands Park

VK5HE—H. V. Eastwood, 11 Brentnall Avenue, Blair Athol.

VK5LT—J. D. Churcher, 41 Wood Street, Kurralta Park.

VK5OE—D. E. Sidler, 23 White Street, Henley Beach.

VK5XP—A. M. Parks, 5 Haldane Street, Elizabeth Downs.

VK5ZMW—B. M. Wallis, 19 Blueberry Road, Parafield Gardens.

VK6ZAH—J. D. Holt, 109 Forrest Street, Cottesloe.

VK6ZBQ—E. J. Barbara, 33 Upton Street, East Victoria Park.

VK6ZCL—G. Mears, 60 Frederick Road, Hamilton Hill.

VK6ZEK—J. P. Hughes, 183 Coode Street, Como.

VK6ZFT—F. Dawes-Smith, 19 Field Street, Mt. Lawley

VK6ZAT B. W. J. Jacobs, 5 Shelley Street, Shelley Cove, Riverton

VK7ZFL—F. L. Powell, 12 Tranmere Road, Howrah.

VK8ZDA—J. T. Hart, C/o Theiss Bros., Groote Eylandt.

FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL QSL BUREAU

The National Radio Amateurs' Association (affiliated with the I.A.R.U.) notify the following awards for 1965

The Golden Medal and the I.I.C. Diploma to:

(1) Savez Radioamatera Jugoslavije (S.R.J.), Beograd, Yugoslavia, for the humanitarian work carried out during the earthquake at Skoplje and the flood of Zagreb. The candidature had been proposed by P.Z.K., the Polish Radio-amateurs' Society. The Prize was taken by Mr. Janez Znidarsic, YU1AA, President of S.R.J.

(2) Project Oscar, Inc., Los Altos, California, U.S.A., for the design and construction of artificial satellites, of Oscar series. The candidature had been proposed by A.R.R.L., U.S.A. The Prize was taken by Mr. William I. Orr, W6SAI, President of "Project Oscar."

(3) The winners of 1964 "Columbus Contest": EA7LQ, Jaen, Spain, I1IZ, Livorno, Italy: I1KE, Savona, Italy.

The Annual S.P.D.X. Contest is scheduled for 1500z April 2 to 2400z April 3. Further details from this Bureau.

A full list of awards made available by the Rumanian Central Commission of Radio Sport is available from this Bureau.

Any Amateur who contacted CR7AIM between March 2 and March 13 is eligible for an award from the City of Mozambique. Details from this Bureau.

The annual UA DX Contest is to be staged on May 7 and 8. Full details may be had from this Bureau.

Bert Zander VK2PG has let his hair down and left on an extensive overseas tour. He will be absent all 1966 and his itinerary includes extensive coverage of the U.K. and Europe and practically all the states of the U.S.A. and the southern portion of Canada.

QSL handlings through the Federal Bureau for the year ended February, 1966, totalled 57,393 cards. This is the highest handling since 1948! Comparative figures are: 1964/5, 53,949; 1963/4, 49,966; 1962/3, 47,578; 1961/2, 44,538.

Stations interested in obtaining the difficult H22 Award should take part in the H22 DX Contest, 1500z Saturday, 30th April, to 1700z Sunday, May 1st. The rules provide for:

1. All bands through 10 metres.
2. Usual serial number exchange R.S.T. plus 001, etc.
3. Each HB contact scores 3 pts. Stations may be contacted once per band.
4. Swiss stations will add their canton to their serial number.
5. Multiplier is sum of cantons—a possible 22—worked on each band.
6. Logs to USKA, 6233 BURON LU, Switzerland, by end of May, 1966.
7. Awards to highest scorer in each country.

—Ray Jones, VK3RJ, Manager.

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NEW SOUTH WALES

COMBINED VK4-VK2 "HAMFEST"

Despite squally weather conditions the VK4-VK2 combined "Hamfest," held at Kingscliff, was voted an absolute success. Including YL's, XYL's and harmonics, a total of 115 people were present.

Hams present were VK4's ZDW, LX, MW, HZ, WS, SA, CM, QW, RZ, ZWL, HW, ZBN, ZBV, VB, BA, WW, AB, OL, WX; and VK2's RK, ACO, AUK (from Zone 2), APS, AVS, PF, ZY, BGG, BB, AGE.

A feature of the day was the cutting of the cake specially made for the occasion by Mrs. Marie Dalgleish. The cake was iced and decorated with two true-to-life replicas of Ham rigs, one representing VK2, the other VK4. The rigs were complete with antennae.

Words of welcome were delivered by Stan 4SA, Eddie 2BB, Fred 2PF, Gordon 2AGE and Alf 4OL. Several mobile rigs were present, both h.f. and v.h.f. and operated during the day.

Most noticeable during the day was the getting together of the old-timers. Some had not had an eyeball QSO for many years, while others, although old frends on the air, met for the first time on this occasion. Other noticeable features were the lack of technical jargon during the day, the gathering together of YL's and XYL's and the playing of the harmonics on the sand. Truly a very sociable gathering.

Immediately after lunch an informal meeting, chaired by 2PF (complete with gown and wig according to a local newspaper), was held. It was voted unanimously that the day was a complete success. The meeting then elected a committee to orgainse a similar event for next year. The committee comprises VK4GG, 4SA, 4WS, 2BB, 2RK, 2AGE.

Films were taken during the day and featured in news on RTN8 Lismore and BTQ7 Brisbane.

A telegram wishing all well for the day was received from the VK2 Divisional President, Ivan 2AIM, and read to the gathering. Ivan had suggested such a get-together while on a visit up north some months ago.

The success of the day certainly shows that social gatherings of this nature can be of great benefit to Ham Radio. VK4s outnumbered VK2s by two to one. It is hoped that this situation will be remedied next time. Thanks must go to George VK4GG for instigating the idea and to Eddie VK2BB for the local organising, also to Marie for the wonderful cake.—Gordon Dowse, Zone 1 Officer, VK2.

SYDNEY YL NEWS

Muriel VK2AIA has just gone into hospital and has had an operation which will keep her there for some time. She is in Marrickville Hospital but will be home by the time this is in print. I'm sure she would be very happy to hear from her many friends.

CENTRAL COAST BRANCH

The Central Coast Branch Field Day was held at Gosford on February 27 and was a tremendous success. There were 110 licensed Amateurs there and a total of 300 families and friends. The weather was perfect with plenty of sunshine and a light breeze. The tourist trips were booked out and everyone reported back for afternoon tea in high spirits.

The homebrew equipment was extremely well represented in the Construction Competition and the standard was very high. The winning article was a Swan type transceiver which was beautifully made. The 40 metre sensitivity test for receivers was very interesting and the spectators got as much out of it as the participants. Conditions were fairly good but the Rx had to be very good to hear the last few calls. The Lucky Dip was especially good this year with everyone getting a lot of value for their 10 cents. The harmonics' pedestrian hunt was fun for all and we hope this will be a regular feature of the Field Day.

The fox hunts, mobile all-band scramble, adult pedestrian hunt, quizzes, raffles, etc., were all well patronised and in every case someone carried off the prize. The person who guessed the number of condensers in the bottle was especially lucky as there were several dollars' worth of bits and pieces there.

Of course the day cannot be fully reported without mentioning the magnificent effort of the ten ladies who put on a delicious hot lunch which was nicely served and then enjoyed in the very pleasant atmosphere of the new dining area. The morning and afternoon teas were very welcome also as appetites always seem to be sharper on a day like this. The ladies worked very hard for long hours but I'm sure they enjoyed their work as there was a good deal of yak and laughter emanating from the kitchen department. I am speakink for everyone when I say that their mighty effort was greatly appreciated.

We also would like to thank the many firms who so kindly donated prizes which helped considerably with our expenses and most certainly increased the fun of participation. Following is a list: Mullard Australia, Ducon, Collins Radio, A.W.V., Philips, International Resistance, O. T. Lempriere, W.I.A. Divisional Headquarters and the Gosford R.S.L. Club. There were also several private donations from club members. We were very [illegible] to have Ivan VK2AIM, N.S.W. Divisional President, present with his family and to have him present the prizes to the contest winners: All-band Scramble, VK2AH, First 2 m. fox hunt, VK2AWZ; 2 m harmonic pedestrian hunt, Garry VK2ANY, XYL 2 m. scramble, XYL of VK2ZCF, Second 2 m. fox hunt, VK2BMK, 40 m. Rx Sensivivity, VK2PU; Best home-built gear, VK2ANU, Guessing Comp., VK2ACT, Raffle, VK2BJO; Adult Pedestrian Hunt, VK2AAH and Lance in a tie

The Field Day is a joint effort for the Club in which nearly all members help in some way. Ernie VK2EH, our President, has asked me to convey his thanks to everyone who helped make the day so successful. A lot of time and thought go into this sort of thing which is not always apparent on the surface when things run along smoothly. The combined effort of many hands was very much appreciated. We were very happy to see so many visitors from far and wide and look forward to seeing you all again next year. Many thanks for coming. 73s, Mona, VK2AXS.

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VICTORIA

STATE CONVENTION

ARARAT, APRIL 23 and 24, 1966

The Western Zone President, David 3ADS, has promised a very enjoyable and interesting week-end with the following anticipated programme.

Radio Amateurs are expected from far and wide, some coming by plane and some by road, in which radio contact will be available for both plane and mobile at our V.R.I. Hall in Ararat.

Saturday afternoon will be for those visitors to arrive and check in at the V.R.I. Hall (behind the Shire Offices), where David and his committee will be available to advise on accommodation if booked previously, and for any other matters, but you must be back by 1800 hrs. for dinner. The conference will follow immediately after the dinner in the V.R.I. Hall, and to those ladies and visitors not wish-

SILENT KEY

It is with deep regret that we record the passing of:

VK2ACQ—F. A. Pearson.
VK4TK—R. P. C. Stack.

OBITUARY

FRANK A. PEARSON, VK2ACQ

There was a general feeling of sadness and personal loss when the news became known that Frank Pearson, VK2ACQ, had passed away suddenly at his home at Umina Beach, N.S.W., on Thursday afternoon, March 3. Only a few days before he had been assisting in his usual cheery fashion at the Central Coast Branch's Field Day.

Undoubtedly it would be quite true to say that no other person has had such a close personal contact with the members of the N.S.W. Division, for since his retirement Farnk has, with Mrs. Pearson, travelled the length and breadth of the State, meeting members, discussing their problems and advancing the cause of Amateur Radio and the W.I.A. wherever he went.

In addition to this, his work as Morse Practice Supervisor was known not only all over Australia but in New Zealand and the Pacific Islands, and the hundreds of letters of appreciation from satisfied customers bear witness to the value of his tape service and the nightly Morse practice which he supervised.

For some months past Frank had been a member of the VK2 Divisional Council, and as with his other activities he was ever mindful of anything of benefit to the members of W.I.A. The success of Council's drive for Zone Officer appointments may be directly attributed to Frank's liaison work in the country areas.

The VK2 Division, and indeed every Division of the Institute, has lost a good friend—one that will be very difficult to replace—but his work will serve as a monument for a long time to come.

The funeral at the Northern Suburbs Crematorium on March 5 was well attended by members of the W.I.A. Divisional Council was represented by the President and both Vice-Presidents, and the sympathy of all members was tendered to Mrs. Pearson and members of the family.

ing to stay and be bored may adjourn to the local cinema where they will be looked after by George VK3GN. At approx. 11 p.m. we will all meet back at the V.R.I. Hall for supper.

Sunday arrangements will be for a Car Trial, Fox Hunts and Hidden Txs, etc. A barbecue lunch will be held at Mt. Langi Ghiran picnic ground. An interesting and varied programme for the XYLs and children. All of this is due to finish about mid-afternoon. Neil VK3AQD.

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QUEENSLAND

TOWNSVILLE AND DISTRICT

Very sorry to report the passing of another old-timer Bob VK4TK, who joined the ranks of Silent Keys on 12th February. Bob was active for many years in Innisfail where he operated since obtaining his licence in 1932. Bob will be missed by many as he was well known on the "Kookaburra Net" on 7 Mcs. each morning.

At long last again able to report that the Radio Club of Townsville is again functioning. At a meeting held at the local "B" Class station, it was noted that there were 18 present. A few old-timers plus some new operators, and a few future ones. It was decided to again affiliate with the W.I.A. in Brisbane, and a letter was to be sent with the usual subscription. Quite a long discussion ensued re proposed classes and it was held over meantime till the secretary obtained some information from the VK2 Division re courses being made available.

Help was asked by some of the newcomers in making some radio projects. Needless to say this was readily forthcoming from the old-timers, who also promised to donate bits and pieces where required. Another item under discussion was the joining of the Adult Education so as to avail the Club in obtaining films, etc., for viewing by the members. Allan 4PS gave quite a descriptive lecture on the activities of the local "Moon Watch Society" and the methods used in locating the satellites. Townsville group being one of the few throughout the world in this regard. He also illustrated with the aid of diagrams on the board and slides. It was really appreciated by all present. Lectures and films promise to be a feature at each meeting in the near future.

Eric 4EL is in hospital and it is to be hoped he is home again ere these notes appear. Merv. 4DV journeyed to the Airport to see Arnold 4AG as he passed through on the way back north. Ted 4EJ and Bert 4LB both in the process of acquiring more headaches as they are building "Transceivers" so as to be mobile as they move about on leave.

Quite pleasing to see two boys from Ayr at the local radio club meeting. No doubt will be trying to have an exchange of visits in the future, same as a few years ago. 73, Bob 4RW.

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SOUTH AUSTRALIA

The monthly General Meeting and the Annual General Meeting of the VK5 Division were held in the clubrooms on February 22 to an unusually small attendance of members, and now that the meetings are over I can't say that I blame those that stopped away. There was a time when these two meetings could guarantee a full house in anticipation of the entertainment to be provided, both from the Council and Members, and as I have said before in these notes, at the end of the evening the only regret was that this type of meeting only came once a year. This year, however, the meetings turned out to be the most wishy-washy of all times, no arguments, no lost tempers, and consequently no entertainment. In fact both the meetings were finished at the almost impossible time of 9.35 p.m., leaving the caretaker still asleep, and his Alsatian in the middle of looking for that elusive itch. Oh well, I suppose we will have to accept it, this is the modern way, but I still say the old days were never like this, and it is no credit to any Division when not one point of dispute can be found in two meetings. In fact, some of the less polite old-timers could be excused for thinking that when there are no arguments or points of dispute coming out, then apathy is surely coming in. Nuff sed!

Joe 5JO bobbed up at the meeting. It appears that he and his XYL called in to see Arch 5XK and both left the XYL's to fend for themselves and galloped off to the meeting hotfoot. Gallantry—thy name is Amateur Radio!

Talking of Arch 5XK, and who would, reminds me that rumour has it that he bobbed up at the December meeting, armed with Christmas goodies, and was overcome to find out that the Christmas Do was held in November. He sat in the corner all night, munching his goodies, and glaring at all and sundry.

Dave 5DS, my favourite Scotsman, noticed at the meeting, and one of my espionage agents tells me that he was having a go on the Admiral's s.s.b. rig, and the contact at the other end told him how well his voice sounded. Dave was so impressed he intends to finish his s.s.b. rig as quickly as possible. The tricks these users of "The Thing" get up to for converts.

I have been wondering just what sort of weather I am going to get for my annual holidays next month, but my fears were set at rest by the news I received at the meeting to the effect that John 5ZJC has left Ceduna, and is now stationed at West Beach. He has promised to give me just the sort of weather that I deserve, which at first thought was very good of him, but on second thoughts I am a little dubious. Just what sort of weather do I deserve?—Don't answer that!

The VK5 Division, especially the Y.R.S. section, wishes to thank Mr. Royston of the Adcola Manufacturing Company in Victoria for the donation of the soldering iron which was sent up to the Port Pirie Youth Radio Club and presented to the most promising member of the club. The details of the presentation to the lucky recipient will no doubt be received by the VK5 Division in due course, and it will be a pleasure to refer to it in these notes at some future date.

Talking of clubs, I notice that the Elizabeth Amateur Radio Club now has a special QSL card publicising the City of Elizabeth, which was presented to the club by the Elizabeth Council. The front of the card bears the City Crest, and the words "Greetings from Elizabeth, South Australia," with suitable space for details of the contact, and at the back is a brief description of the city. Don 5TM handled the negotiations in his usual efficient manner, and is also holding cards for distribution, which may be obtained by members from any member of the committee, and all for free, too.

Did you notice the amount of space that the VK4 Division had in the Divisional notes of the February issue of the magazine? even though the Publications Committee had said that no notes would be required. Somebody ought to write a letter of protest to the Editor!!

Talking of the VK4 Division, and I hesitate to do so for fear of reprisals, the VK5 Division recently wrote to all Federal Councillors for a copy of their Electrical Licensing Act. The necessary information was received, plus a query as to whether we were: 1, "Thinking of migrating to the better part of the country?" 2, "Building a do-it-yourself electric chair for PanSy" 3, "Trying to sabotage the coming Federal Convention" Flattery, flattery, that's all I seem to get from VK4—Such is fame!

W.I.C.E.N. these days in VK5 is quite a rejuvenated set-up. Geoff 5TY, the newly appointed co-ordinator, has managed to infuse into the members all of his drive and enthusiasm, so much so, that at the moment of writing the official strength is given as at least 45 interested and very keen members, which has enabled a new roster to be printed. Following an exercise for the newcomers on Friday, a full call-out occurred on the following Tuesday when a serious bush-fire threatened the foothills and adjacent areas, which continued for at least 48 hours, and the W.I.C.E.N. members acquitted themselves in no mean style. The base area on the Tuesday was manned by Curly 5CL, Clive 5PE, Treva 5ZIS, Trevor 5ZTM, Mac 5MM and Leith 5LG, with the mobiles in the fire area being Tim 5ZGV and Geoff 5TY. On the Wednesday, the set-up was still in force, with the mobiles in the fire area being Brian 5CA, Graham 5ZGW, Trevor 5ZTM, Jeff 5LT and again, Geoff 5TY.

This call-out would probably rank as the biggest yet in VK5, and from all reports definitely put W.I.C.E.N. on the E.F.S. map. Naturally Geoff 5TY was more than pleased with the results, and particularly pleased with the fact that so many non-members of W.I.C.E.N. called up and offered their assistance if required, backing out immediately and waiting for instructions. All in all, a splendid effort, giving W.I.C.E.N. a much-needed shot in the arm, and at the same time rewarding the new co-ordinator for all the hard work he has put into the job since his appointment following the resignation of John 5JC from the job. W.I.C.E.N. was nearly called out the next night, when in conversation with him I innocently pointed out that in view of the fact that there were several t.v. cameras at the scene of the fires, I knew he would be sure to be in the vicinity. Boy, did he go red in the face, as I told you, W.I.C.E.N. was nearly called out to extinguish the flames!

Brian 5CA, quite apart from his activities at the fires for W.I.C.E.N., also had his first taste of bush-fires being near to his new QTH, and when I say near, I definitely mean near, the flames licking the back fence, or thereabouts. Rumour has it that he and his XYL Marlene organised a teacup brigade at the start of the blaze, but soon changed to a larger utensil as the flames grew closer. It must have impressed him, because he rang me at midnight to give me the gruesome details!

One of the contributing factors to the early finish of the afore-mentioned monthly meetings was the fact that no ballot was necessary for Council this year, only the required number of nominations being received, and I say again with no hesitation, this is not a good sign. I know that I am an old fuddy-duddy, but competition for Council is a healthy sign, and if there be no competition, then it means only two things, either the members are more than satisfied with Council, or the members are not very interested one way or the other. There are only two new members for the 1966-67 Council, Al 5EK, by virtue of being the new secretary, and if all is to be believed, settling in very nicely, thank you—and Ron 5KS. Neither needs any introduction to members, their past activities in the Division speaks for itself, and Council at the moment looks as strong as ever it was, with every member having proved a worker in the past. Good luck to them.

Heard Carl 5SS on 7 Mc. in QSO with—you will never guess—Frank 5MZ the other early evening, and he was a bit acidy about having to make out a contest log for a VK contest in G.M.T. He admitted that G.M.T. was necessary for DX and the like contests, but for the life of him could not see the necessity for G.M.T. in a VK contest. Strangely enough, this subject came up for discussion at a recent VK5 Divisional meeting and the result was an agenda item for the coming Convention in VK4. Carl will no doubt be interested to know that his sentiments were echoed by all present at the meeting.

Back at the end of 1965 I had almost finished an article for the magazine on a band-switched all-triode converter, but left it until the new year to polish it up. The article has now found its way into the waste paper basket because in the January issue of the "Mag." was an excellent article on the same subject by Greg. Johnston, who described himself as an SWL from VK7. His set-up is almost identical to mine, and I am more than pleased with it, as is he, and I can thoroughly recommend it for your perusal. The only sour note in the whole article by Greg. was his statement at the opening, "that his s.w.l. status does not allow him to fiddle effectively with other than receivers and receiver techniques." Why Greg? Going on the article, and your obvious qualifications, a call sign would be a pushover—and VK7 would be the gainer. Why not OM?

Phil 5NN called in to my QTH the other evening to lend me some R.G.S.B. magazines, and to borrow some 73 magazines. Whilst there with his usual cunning, he introduced the subject of s.s.b. (the "Thing" to you) and during the ensuing conversation he had the audacity to suggest that my evident bias and aptitude for saying nasty things about s.s.b. was only a gimmick to use in the VK5 notes. How insulting can one get? A gimmick, me!

Met a friend of mine this week who is also working in the same establishment as Les 5NJ, who informed me with evident relish that Les wished to be remembered to me, and also to tell me that he had gone s.s.b. My friend did not have the slightest idea of the significance of the message that he was passing on, but judging by the sneer on his face he had been well rehearsed. Les, how could you?

Had a long talk to Marshal Hider at the meeting, who incidentally dates his association with the VK5 Division back as far as 1924, or even earlier. An ex-Councillor, ex-secretary, and a definite hard worker for the Division, he never bothered, during his long service to VK5, to get a ticket, mainly because of being too busy and other distractions, but has at last decided to give it a go and will sit for the next examination. Nice work, OM, but it would have been a lot easier 40 years or so ago! See you on the air one day?

Heard Les 5LC in contact with a VK4 the other day. How is that Les? Three references in three months in the notes, after your reported lapse of five years—anyway, during the QSO up bobbed a VK2, I missed his call sign, but he turned out to be none other than an ex-VK5 in Frank Hill, who by the way, worked alongside me at the B.B.S. (Best Broadcasting Station in VK) just after the last war, and then migrated to VK2, married and settled down. Greetings Frank.

Our usually genial and smiling Publications Officer, Uncle Tom 5TL, was noticed at the V.I.P. table before the meeting surrounded by his pile of publications, but looking decidedly sour and dejected. When asked the reason he went into highly technical explanation

concerning miniaturisation of receivers and transmitters, finally coming out with the statement that he had been experimenting with a small transceiver for W.I.C.E.N., which could be hurriedly rushed to the seat of the emergency and set up in a jiffy. His troubles apparently had been many and varied, although his last prototype had been small enough to be carried by a large camel or possibly a three-quarter size elephant, although he felt that he would be able to get it even a little smaller with a squeeze. He was cut to the quick with my suggestion that his appearance at the scene of any emergency, accompanied either by a camel or an elephant, would be enough to end any emergency, but when I said, as I was leaving the meeting, "Goodnight Elephant Boy," he gave me an excellent imitation of the caretaker's Alsatian, so much so, that I waited not upon my orders to depart!

Our revered and respected President, Ross KF, can sit back on his laurels now that the first year of his reign has ended, especially as he now holds the record of having been chairman of the shortest annual general meeting in the history of the Division. I wonder just what his secret technique is?

A wily bird is our Arthur 5HY, at the meeting before the last he came and sat near Albert 5ZL and myself, and proceeded as usual to give me my usual earbashing on the merits and demerits of "The Thing." Although my ear was trailing on the ground when he finished, I was able to resist his attack, and patted myself on the back as to my solidarity. How simple can I be? He came up to me at the meeting this month and nonchalantly remarked, "I see that Albert 5LZ has become a member of the s.s.b. fraternity." "He was so interested in our conversation at the last meeting that he bought a commercial job and is tickled with the results." That settles it, I am going to sit in a corner all by myself at future meetings, nobody is going to use me as a stooge for "The Thing." I must be getting old, I will be falling to the thimble and pea act before long!

Well, this has been such a dismal month, one way and another, that I am going to stop now—why is everybody cheering?—even though the notes may be a little shorter than usual, ahem, but don't despair, this is only a temporary feeling of frustration, and I will be back next month, bigger and better than ever, the Publications Committee and the Editor being willing. What's that?—Why worry to come back?—Throw that VK4 out!!

73 de 5PS—PanSy to you.

TASMANIA

By now our Annual General Meeting and Dinner is over, and your new Council has been elected. On their behalf I thank you for the confidence you have shown, and as in the past I know the business of the Institute is in good hands.

We must of course say farewell to our three Councillors who did not seek re-election this year, they are Tiny 7JD, Ted 7EB and Charlie 7KS—all key men in Council for the last couple of years at least. Thanks to each of you from all of us for a job well done. Let's hope we'll see you back one day.

Keith 7RX has gone sideband, with a home-brew rig. He brought along some photos to show around at the March meeting and it appears to be a f.b. rig, built in true 7RX construction. Tom 7AL is in the process of building up a s.s.b. rig also, and so I expect it won't be long before we hear "Uncle Tom" on the bands again (not before time either).

Ian 7ZZ is in the process of acquiring himself a 40 ft. tower, which he tells me he's going to tdp with a 3-band quad—as if he doesn't work enough DX now—he'll never go to bed at all when the bands open.

Our loss is someone else's gain, and this is very true in the case of Doug 7DZ who is leaving this fair isle for that most important city of Canberra. Good luck Doug, hope to hear you on the bands in the not too distant future. We'll always be interested to hear from you.

With official approval for slow Morse transmissions to hand we have three sessions each week on 52.2 Mcs. in the southern part of the island. The time is 8 p.m. on Sunday, Tuesday and Thursday evenings. Don't forget chaps, if you take advantage of this service, let the operators know, we had trouble once before, the operators spent hours at his rig, and to my knowledge he never ever knew, not even knows now, whether anybody took advantage of the service—most disheartening I think you will agree.

Easter is upon us again, which of course means Convention time, all conventions are important, but this year's should be more important than most, as the matter of federation should be, we hope, finalised. Then it's up to the Attorney-General. We wish the conference this year, as in other years, every success. Incidentally, we may lose our Federal Councillor, Ted 7EJ, in the latter part of the year. He tells me there's a chance he may go to Darwin. He has been told a time or two in the past where he can go, but no one ever thought he'd take us seriously—for VK7's sake we all hope you can delay it for another year if not longer, Ted, but as someone once said, "When you gotta go ya gotta go," and that's about what I'll do now.

Hope everyone who attended the annual meeting and dinner enjoyed themselves, and we'll see a few more still at next years' function. 73, Geoff 7ZAS.

HAMADS

Minimum 5/-, for thirty words. Extra words, 2d. each.

Advertisements under this heading will be accepted only from Amateurs and S.w.l's. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 36, East Melbourne, C.2, Vic., by 8th of the month and remittance should accompany the advertisement.

EDDYSTONE 640 Receiver, 1.8 to 31.0 Mcs., with crystal filter, b.f.o., external S-meter and speaker, $75. PANDA all-band self-contained a.m. Transmitter, $75. VK2EX, 30 Boomerang Rd., Springwood, N.S.W.

FOR SALE: Heathkit DX60E and HG10 v.f.o. 80 mx. through 2 mx. Mohican GC1A. All as new. 150 Mc. a.m. 10 watt v.h.f. 5-channel radio telephone. Separate transistor, P.S.U. New 25 Kc. a.m. Radio telephone. Ph. 306-9683, 4 Oak St., Pascoe Vale, Vic.

FOR SALE: Power Supply—500v., 250 mA., 300v. 150mA. and two 6.3v. filament lines, $25. 2 metre Tx. Runs 85/90 watts to 6/40, $25. Power Supply—650v. 200 mA., 300v. 150 mA. and two 6.3v. filament lines, $25. 80 watt Modulator. Class B zero bias 807's, UM3 mod. transf., preamp and p.t.t., dynamic mike, $35. Control Panel, performing all Tx/Rx functions for p.t.t. operation, $10. The above items are all part of a complete H.P. 2 metre station and function together as such. Will sell items separately or will take $100 for the lot. Hepburn, 4 Elizabeth St., East Brighton, Vic. Tel. 96-2414 evenings and weekends.

FOR SALE: R1155B Receiver in excellent condition, complete with power supply and speaker, $49. VK2TS, R.M.B. 100a Mangrove Mountain, N.S.W.

FOR SALE: 3 in. CRO type MD/32 separate P/S and handbook, $25. Brand new and unused Collaro mono tape deck, $40. 6 meter Converter with all valves (ES8, 2 off BL8) and xtal for 4 Mcs. i.f., $10. Power Supply—1000v. 300 mA. (trans. tapped at 850/750/550) and 400 v. 200 mA., all on one chassis, $25. AMR101 Comm. Receiver. Made by A.W.A. and modelled on National H.R.O. Coil boxes 900 Kcs. to 30 Mcs. Separate power supply operates on either 240v. a.c. or 12v. d.c., $70. 2 metre Tx. Runs 15 watts to 3/12. Complete with modulator, power supply and microphone on two 3½-inch sections of standard rack panel, $30. Vox unit —complete with all tubes and 10K relay on 3½-inch panel, $15. Prices open to negotiation with H. L. Hepburn, VK3AFO, 4 Elizabeth St., E. Brighton, Vic. Tel. 96-2414 evenings and weekends.

HANDBOOKS available for ATR2A, ATR2B, ATR4A, AT13B/AT13C, AT14A, AR17, AMT150. Best offer. VK3AXK, 28-4968.

SELL: Geloso G222TR Transmitter, as new, £60 ($120). Has had very little use. M. Saunders, VK3AMV, 106 Victoria St., Warragul. Phone 21218.

SELL: Hallicrafter S38B Communications Receiver, 5 tube, 4 band, converted power supply for 240v. operation. Excellent condition and performance, $40. J. D. Fargie, 26 Veronica St., Lower Ferntree Gully, Vic.

SELL: 5 ft. cabinet-type rack with 144 Mc. xtal contr. x-mtr. QQE06/40, 80 w. inp.; v.f.o. contr. 52 Mc. x-mtr. QQE06/40, 80 w. inp.; Modulator 2 x 807 in AB1; Plate and screen mod.; Sidetone osc.; DG7-5 C.R. tube; Power supply 600v. 400 mA., 300v. 150 mA., 24v.; Meters: 0-10 mA. grid current, 0-250 mA. plate current, 0-1000v. plate voltage; everything is relay controlled, $195 or near offer. C. Hagoort, VK5CW, Lot 25, Larkdale Av., Paradise, S.A.

WANTED for Youth Radio Club; BC221 Frequency Meter or similar, with calibration book. Price and details to VK2AXC, 78 Aberdare Road, Cessnock, N.S.W.